

Adrenalin

The Emergency Remedy

TWENTY years ago the chemical formula for Adrenalin was worked out by our research chemists. That discovery alone assured the renascence of endocrinology—this time as a serious scientific study.

More thought and work and expense have been lavished on determining the exact pharmacology of Adrenalin than on any of the other hormones.

Today Adrenalin is entrenched in



the *Materia Medica* side by side with such indispensable remedies as digitalis and quinine.

Adrenalin is essentially an emergency drug, and its main indications are in the treatment of shock, hemorrhage, and the paroxysm of asthma. It is used advantageously in connection with local anesthetics. Its unfailing action forms the basis for certain diagnostic procedures, such as the Quench test and the test for adrenal hyperaesthesia.

Parke, Davis & Company

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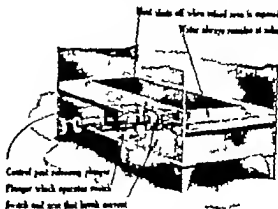
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There is no thermostat - fatal
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Keywords: *Self-esteem, self-esteem threat, self-esteem threat sensitivity, self-esteem threat sensitivity scale, self-esteem threat sensitivity scale-2*

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From

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Comets, Beards, F&H

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BOTH Caustro-Thermal and the boilable grade of Kalmerid catgut, described on preceding page are subjected to the same sterilizing procedure: the sealed tubes are submerged in bath of cumol and there exposed for five hours to the rigorous temperature of 165° C. (329° F.) It is obvious that sterility is absolutely assured. Rigid bacteriologic control is maintained.

Kalmerid Catgut—(Non-Boilable Grade) Extra Flexible

THE NON BOILABLE grade of Kalmerid catgut differs from the boilable variety described on the preceding page in that it possesses extreme flexibility—a characteristic sometimes desired by surgeons accustomed to the use of solized catgut. It is impregnated with potassium-mercuric-iodide and the suture exerts a local bactericidal action in the tissue.

Potassium-mercuric iodide is the double salt of iodine and mercury, the chemical formula of which is $HgI_2 \cdot 2KI$. Through its use the various advantages of solized catgut, del. moration, irritation, and unimpaired tensile strength, have been secured. It is one of the most active germicides known, exerting a killing action on bacteria about ten times greater than that of iodine. Physiologically it is bland and is entirely compatible with the tissues, not being precipitated by the proteins of the body fluids.

VARIETIES OF THE NON BOILABLE GRADE OF KALMERID CATGUT

Each Tube Contains Approximately Sixty Sutures

| Plain Catgut | Non-Boilable Grade | No. 1476 |
|----------------|--------------------|----------|
| 10 Day Chromic | Non-Boilable Grade | No. 1475 |
| 3 Day Chromic | Non-Boilable Grade | No. 1445 |
| 30-Day Chromic | Non-Boilable Grade | N. 1475 |

Sizes 000 00 0 1 2 3 4

In packages of twelve tubes of kind and size

Last Price per dozen tubes (in U. S. A.)

A wholesale discount of 25% is allowed on one gross or more (25% net per gross) carriage paid

Kalmerid Kangaroo Tendons Boilable and Non-Boilable

KALMERID KANGAROO TENDONS are the authors' par excellence for those procedures in which post-operative tension is excessive, or long contoured approximations necessary such as in herniotomy and in tendon and bone suturing. They are not only sterile but, in addition, are impregnated with potassium-mercuric-iodide as in Kalmerid catgut, which enable them to exert a local bactericidal action in the tissue.

They are genuine kangaroo tendons; they are smooth, straight, of uniform contour and possess a tensile strength about twice that of catgut.

The tendons are chromolyzed, and so accurately in the process regulated that each line will maintain approximation in fascia or in tendon for approximately thirty days.

Kalmerid kangaroo tendons are prepared in 10 grades, boilable and non-boilable. The latter are extremely pliable.

VARIETIES AND SIZES

Non-Boilable are Product No. 570

The Boilable are Product No. 340

Each Tube Contains One Tendon
Lengths Vary From 15 to 30 inches

STANDARD SIZES 0 2 4 6 8

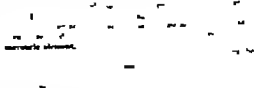
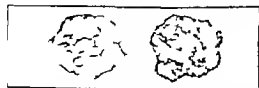
Formerly termed extra fine line, medium, coarse and extra coarse respectively

In packages of twelve tubes of kind and size

Last Price per dozen tubes (in U. S. A.)

A wholesale discount of 25% is allowed on one gross or more (25% net per gross) carriage paid

THE PERMEATION OF KALMERID SUTURES BY POTASSIUM-MERCURIC IODIDE



General Qualities

THE SALIENT FEATURES of all varieties of D&G Sutures are compatibility with the tissues, perfect absorbability maximum tensile strength,

accuracy of sizes, flexibility and absolute sterility. They are unaffected by age or light, or by extremes of climatic temperatures.

Unabsorbable Saturates

Heart Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity in Each Tube | Standard Value |
|-----------------------|-----------------------------------|----------------|
| | — | 000, 00, 0 |
| | | 00 |
| | | 00, 0, 1 |
| | | 00, 0, 1 |
| | | 1, 0, 1, 2, 3 |
| | | 000, 0, 2 |
| | | 00, 0, 2, 4 |
| 440 Black Hibwood DUK | PM 15 | 00, 1, 4 |

460 Black Blended Sails 60 in 00, 1, 4
to packages of twelve tubes of blue and size
List Price per dozen tubes (in U. S. A.) \$3
Wholesale discount of 20% allowed on gross or more carriage paid

Short Length Antennae

Heat Sterilized After Closure of Tubes - Rollable

| Product No. | Approximate Quantity in Each Tray | Possible uses |
|---------------------------|-----------------------------------|----------------|
| 802 Plain Catgut | 20 in | 00, 0, 1, 2, 3 |
| 812 10-Day Chromic Catgut | 20 in | 00, 0, 1, 2, 3 |
| 822 20-Day Chromic Catgut | 20 in | 00, 0, 1, 2, 3 |
| 862 Horsehair | 2 28-In. Sutures | 00 |
| 872 Plain Silk ors Gut | 2 14-In. Sutures | 0 |
| 882 White Twisted Silk | 20 in | 00, 0, 1 |

| | |
|--|---------|
| 1 package of twelve tubes of | Insulin |
| Lot Price per dozen tubes (as U. S. A.) | \$1.50 |
| Wholesale discount of 24% allowed on gross or more carriage paid | |

Sutures With Needles

Heat Sterilized After Closure of Tubes—Possible

| Product | Approximate Quantity in July '90 | Standard Inventory |
|---------------------------|-------------------------------------|-----------------------|
| #04 Plain Catgut | 20 in | 00 0 1 2 3 |
| #14 10-Day Chromic Catgut | 20 in | 00 0 1 2 3 |
| #24 20-Day Chromic Catgut | 20 in | 00 0 1 2 3 |
| #64 Horsehair | 2 26-in. Sutures | 00 0 1 2 3 |
| #74 Plain Silk suture Gut | 14 in Sutures | 00 0 1 2 3 |
| #84 White Twisted Silk | 20 in | 00 0 1 2 3 |

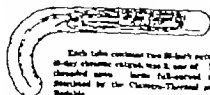


EXTRAFACT MEASURE
of Skin Muscle or Tendon

1 package of 10 test tubes of band and note
 Last Price per dozen tubes (in U.S.A.) \$2
 Wholesale discount of 10% allowed on prices or more, carriage paid

Obtuse Angles

For Immediate Repair of Perpetual Lacerations



Each tube contains two 30-day portions of 30-day chronic calpain, was 2 mm of each is threaded into the tube full-sized needles threaded by the Clavon-Thermal method.

One size for package
Product No. 560. List Price per (size) \$ 13
Wholesale discount of 25% allows of no gross or more reduced price

Circumcision Sutures

Heat Sterilized After Closure of Tubes—Bouillab



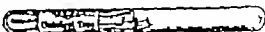
Each tube contains a 50-inch suture of plain catgut, size 00 threaded upon a small full-curved needle.

In packages of twelve tablets

Product No. 600, Lmt Price per dozen tubes 83
Wholesale discount of 25% allowed on gross or more carriage paid

Umbilical Tape

Heat Sterilized After Closure of Tubes - Bottlable



Each tube contains two 12 inch ligatures of a specially woven flat tape one-eighth inch wide

Product No. 802. List Price per dozen tubes \$1.50
Wholesale discount of 20% allowed on orders of more than one dozen

Standard Size For All Satires

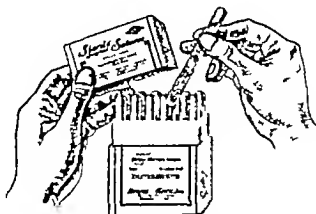
000 _____ In conformity with the long
00 _____ recognized need for a
0 _____ unified system of sizes, the
1 _____ standard scale of catgut sizes
2 _____ now embraces all sutures, in-
3 _____ cluding Langstro tendon, silk,
4 _____ horsehair, silk worm gut, and
5 _____ Pagenstecher & celluloid linen
6 _____ thread.

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By Cassius H Wallace, B.S. M.D. Surg. Oya & Obstet. Sept 1918
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Kearse Ph.D. Abstract of Forestry March 1906.
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By Cassius H Wallace B.S. M.D. Surg. Oya & Obstet Jan 1918
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ADVERSELY WITH LOCATIONS BY LEE PHILIPPO, M.D. JUST
A M.A., April 1914
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FOR DEFENSIVE PURPOSE DAVIS & CLARK, INC 1912
- 10 ADVERSELY AMERICA LN HAS BY Thomas A Perry
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*Attending Surgeon, Memorial Hospital, New York City
The American Journal of Roentgenology*

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*Medical Superintendent, The Radium Institute, London
Report of the Radium Institute*

"The way of opinion today among scientific research workers is that toxic porter is not surgical disease. After some years of experience and the assurance of my co-workers, I have arrived at the conclusion that radium is the treatment of choice."

R. E. LOUCKS, M.D., F.T.M.C.

*Detroit, Mich.
The American Journal of Roentgenology*

If you are interested in these questions and desire further information commensurate with your Medical Department.

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RADIUM BUILDING, DENVER, U. S. A.

Branch Office

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202 MARKET ST.

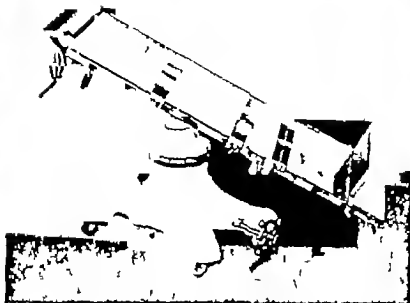
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3 Comparison of Ores

THE European pitchblende ores with which Madame Curie worked yielded about one gram of Radium to every five or six tons. In the case of

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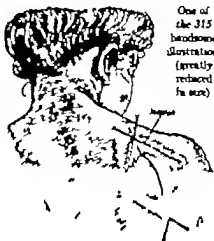
Labat's Regional Anesthesia

ITS TECHNIC AND CLINICAL APPLICATION

THIS is a magnificent work — noteworthy for lackluster of style, beauty and instructiveness of its original illustrations, of which there are 315.

The object of the work is to afford the opportunity of acquiring rapidly a practical knowledge of regional anesthesia and to teach the reader how to apply the method successfully in the operating room.

The work throughout is the expression of the author's personal experience



One of the 315 handsome illustrations (greatly reduced in size)

cation in surgery of the human.

The different segments of the body are set from the viewpoint of anesthesia. Each technical description is preceded by a short review of the anatomy of the region with special reference to nerve distribution. Indications are given as to the type of operation permissible, but the choice of operation is left to the judgment of the operator.

Field block by infiltration along the sides of the face. 1 and 2 are wounds made at the entrance of the indicated line of incision. The arrows indicate the direction of the needle (reduced).

Special chapters on dental an-

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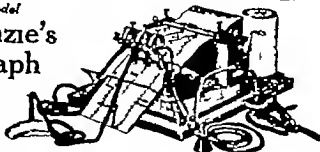
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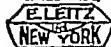
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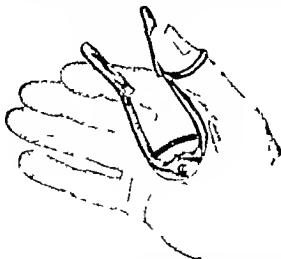
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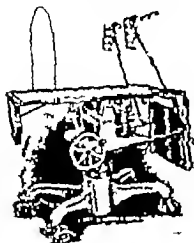
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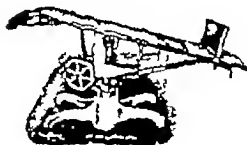
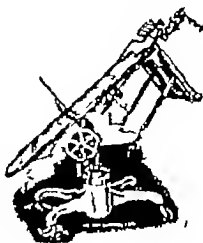
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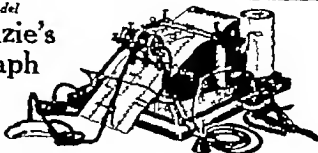
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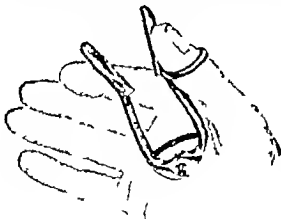
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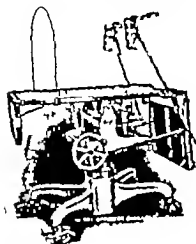
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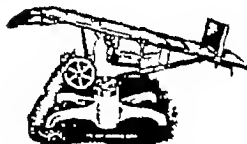
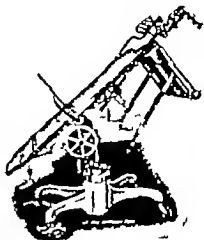
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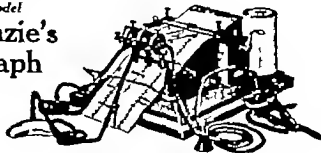
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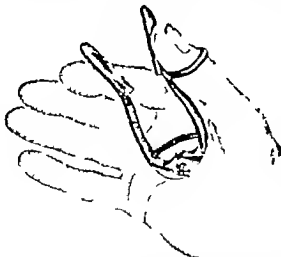
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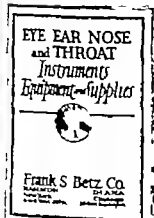
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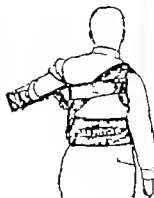
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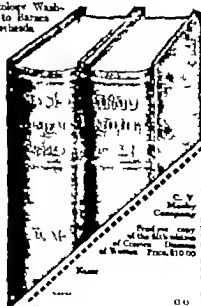
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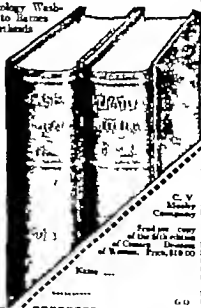
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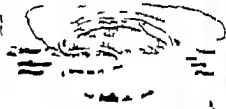
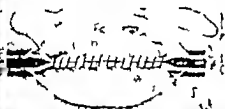
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THE PHYSICIAN AND THE SURGEON¹

By HARVEY CUSHING, M.D. F.A.C.S. Boston

WHY in God's name, in our days is there such a great difference between the physician and the surgeon? The physicians have abandoned operative procedures to the laity either as some say because they disdain to operate with their hands or rather as I think, because they do not know how to perform operations. In deed this abuse is so inveterate that the common people look upon it as impossible for the same person to understand both surgery and medicine. It should, however be understood that no one can be a good physician who has no idea of surgical operations and that a surgeon is nothing if ignorant of medicine. In a word, one must be familiar with both departments of Medicine.

"No one can be a good physician who has no idea of surgical operations and a surgeon is nothing if ignorant of medicine." This, gentlemen of the College is my chosen theme and lest you think it a novelty of my own I hasten to add that the paragraph quoted is transcribed from writings which exist for us only in manuscript, since Lanfranchi, called the father of French surgery who expressed this sentiment, lived two centuries before Gutenberg.

When one considers the healthy unification of Hippocratic medicine why was there such

a difference in Lanfranc's time, and must we admit that the difference he lamented still exists in ours? Does the shadow of the medieval schism dividing medicine and surgery and both from the church, which originated history tells us, in a thirteenth-century papal decree forbidding the participation of the clergy in any procedure involving the shedding of blood—does the shadow of this schism still lie upon us? What difference after all is there between physician and surgeon except in the kind of cases each of them chooses to treat and in the variety of therapeutics applied? And in view of many centuries of separation do we tend toward reunion or further separation? These are questions which concern in no small degree the very existence of this College.

THE PHYSICIAN'S PROGRESS

We certainly have stumbled along widely divergent therapeutic ways, we lay physicians and lay surgeons. The great physicians of ancient days were first of all given over to a polypharmacy inherited from the Arabians, then to the Law of Signatures with its astounding botanical therapeutics then to a period of heroic bleedings and purgings and sweatings. Homeopathy followed, and taught the profession a much needed lesson and finally cellular pathology and bacteriology came to revolutionize physic by arousing a

¹ Cf. Henry F. Henderson, *Colloquia Anglica*, Privately Printed The Cleveland Medical Library Association, vol. 3, p. 399.

² Presidential address before the American College of Surgeons, Boston, October 27, 1921.

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physic-garden, drove plants with a few notable exceptions from the pharmacopoea, and bot any from the curriculum

While all this was going on, much time was spent in evolving "systems" of therapeutics based upon bizarre interpretations of pathology which followed one another in succe-

Its therapeutic sanity under these benign influences. Those uncritical and poorly-trained physicians who live in glass houses and give welcome to the prescriptions of certain pharmaceutical establishments which elbow their way to our desks on leaflets and postcards, cannot throw stones at the laity who give no less a welcome to nature-healers, herbabists, chiropractors, bone-setters, patent medicines, and other charlatans beyond enumeration. Little wonder that the wiser heads, both lay

number better trained devote themselves to the prevention of disease and through public health measures, keep the bulk of the community well in spite of itself in much the same way that we protect our live stock.

THE SURGEON'S PROGRESS

Brown's personal undoing, though he lived north of the Tweed

It is an old saying that the wisest physician is he who knows the uselessness of the most medicines. Nevertheless, in an unfortunate alliance with the apothecaries, at about the time the surgeon was entangled with the

While all this has been going on through the centuries, in physic the surgeon was pursuing an entirely different way independent of tradition and for the most part he it said in rather bad company. A handicraftsman often a rude, uncultivated, and ignorant though practical fellow of itinerant proclivities, he was rarely utilized in the schools, and when so employed merely as the tool of the more learned and socially more respected physician. He had broken away from established authority he ventured to write in the vernacular and sometimes to operate without the physician's permission. Indeed, he did many unorthodox things. However he was greatly needed especially in time of war as Charles V used Vesalius as four successive Bourbons used Paré Elizabeth, William Clowes Charles I Richard Wiseman and to give an example from more modern times, as Napoleon used Larrey. Thus he came to be respected at court, even though he was kept out of the faculties where he was looked upon with scorn not untinged with jealousy. An outcast both of church and profession, he finally climbed into professional and some measure of social esteem about the middle of the eighteenth century by way of the barber pole. But his long and quarrelsome alliance with the Guild of Barbers, humiliating enough,

knocked into the profession by the growing

a neglected principle well known in the Æsculapian temples—the influence of the mind upon body ailments, particularly when
[ma] them
are. that
"if more

science and the doctors more Christianity. It wouldn't make much difference which you called in—provided you have a good nurse." And there is no doubt but that Florence Nightingale and her successors have also had much to do with modifying our modern therapeutics.

But the profession has not entirely regained

was peaceful when compared with the quarrels of the physicians and apothecaries.¹

A short century after the surgeons succeeded in breaking away from this alliance with "barbary" and were readmitted into the schools on the same footing as the physician there came Lister on the heels of Pasteur to revolutionize, not only surgical therapeutics, but at the same time, by the introduction of surgical cleanliness, the very hospitals in which both physic and surgery are practiced. And so it has come about that while the physician today has bowed himself in perfecting elaborate methods of diagnosis for many chronic disorders, he rather shrugs his shoulders over therapeutics whereas on the other hand treatment by operative methods has developed amazingly and there is no gauding that in the hands of some it tends to run away with itself as a therapeutic measure.

RELATION OF PHYSICIAN AND SURGEON

Thus, in very rough outline the two main chemical branches of Medicine long separated both socially and professionally have grown in ways so divergent that the fact of their origin from a common stem has become obscured by an accumulation of therapeutic debris left by a succession, on the one hand, of theorists who like the modern endocrinologist, may perhaps see the patient as a whole but through a mist and by the modern surgical specialist who sees only a part, but that part so disproportionately he is tempted to remove some of it.

Should these therapeutic groups be allowed to riot in their growth unmoored, branching in all directions at will, or will they bear better fruit if grafted or fertilized or cut back remorselessly? All agree that the time is at

hand at least for some judicious pruning both in physic and surgery and for the removal of sufficient rubbish to permit the main stem of Medicine and its roots of Science to be properly exposed and aerated. This process will be good for both root and branch, but more particularly will it benefit the branches if it has the effect of making the surgeon less of a pure technician and more of a physician and the physician more capable of utilizing some of the minor procedures of surgery and with a better understanding of the major ones.

In a word one must be familiar with both departments of Medicine and this is no less true today than in the thirteenth century or in the days of Hippocrates. By no means did Laënnec, in the statement which has been quoted mean to imply that physicians must practice surgery—merely that they will be the better physicians, the better their understanding of surgical therapeutics and on the other hand that no surgeon should be regarded as qualified to undertake operative procedures who is not primarily and thoroughly grounded in medical diagnosis. A graduate in medicine may have a very wide knowledge of surgery or even be a successful teacher of the subject without necessarily being himself an operator just as one may have a thorough knowledge of music without being a performer. So also there may be many activities in which a physician may engage beneficial to his profession without necessarily "practicing" or prescribing drugs.

However when in common parlance we differentiate physician and surgeon we do so only on the basis of therapeutics, and granting the same underlying knowledge of disease

¹ See "Early History of the College of Physicians," *The Annual Relations of Surgery to Medicine*, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 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profound skepticism in regard to the efficacy whatever the dose of most of the drugs abundantly prescribed for symptomatic purposes. This gave to the traditional practices a staggering blow and the coal-tar products with synthetic chemistry finally closed the physic-garden, drove plants with a few notable exceptions from the pharmacopœia, and bot any from the curriculum.

ology which followed one another in succession the Brunonian doctrine being one of the last, whereby diseases were either sthenic or asthenic and a century and a half later we still hear "asthenic states" spoken of as ones which need supporting treatment by alcohol, so that even in these dry days the physician is privileged to prescribe the drug that was Brown's personal undoing, though he lived north of the Tweed.

It is an old saying that the wisest physician is he who knows the uselessness of the most medicines. Nevertheless, in an unfortunate alliance with the apothecaries, at about the time the surgeon was entangled with the barber the eighteenth-century physician was accustomed to write prescriptions for patients he hadn't seen, while enjoying good company in the coffee-house. Some measure of common sense in matters therapeutic was finally knocked into the profession by the growing

its therapeutic sanity under these benign influences. Those uncritical and poorly-trained physicians who live in glass houses and give welcome to the prescriptions of certain pharmaceutical establishments which elbow their way to our desks on leaflets and postcards, cannot throw stones at the lalty who give no less a welcome to nature-healers, herbalists, chiropractors, bone-setters, patent medicine, and other charlatans beyond enumeration. Little wonder that the wiser heads, both lay and professional, have about come to the conclusion that we had better limit the number of students in our schools, and let a smaller number better trained devote themselves to the prevention of disease and through public health measures, keep the bulk of the community well in spite of itself in much the same way that we protect our live stock.

THE SURGEON'S PROGRESS

While all this has been going on through the

rather bad company. A handicraftsman often a rude uncultivated and ignorant though practical fellow of itinerant proclivities, he was rarely utilized in the schools, and when so employed merely as the tool of the more learned and socially more respected physician. He had broken away from established authority he ventured to write in the vernacular and sometimes to operate without the physician's permission. Indeed, he did many unorthodox things. However he was greatly needed especially in time of war as Charles V used Vesalius as four successive Bourbons used Paré Elizabeth, William Clowes Charles I Richard Wiseman and to give an example from more modern times, as Napoleon used Larrey. Thus he came to be respected at court, even though he was kept out of the faculties where he was looked upon with scorn not untinged with jealousy. An outcast both of church and profession, he finally climbed into professional and some measure of social esteem about the middle of the eighteenth century by way of the barber pole. But his long and quarrelsome alliance with the Guild of Barbers, humiliating enough,

a neglected principle well known in the Æsculapian temples—the influence of the mind upon body ailments, particularly when imaginary in large part, as so many of them are. Mr. Dooly once sagely remarked that "If the Christian Scientists had a little more science and the doctors more Christianity it wouldn't make much difference which you called in—provided you have a good nurse." And there is no doubt but that Florence Nightingale and her successors have also had much to do with modifying our modern therapeutics.

But the profession has not entirely regained

when asked for them in an examination, all the symptoms of that vanishing disease typhoid fever but if he has to utilize his own observation, senses, and wits, and dig out, himself the essential symptoms and signs which make the diagnosis possible, he is so incapable of reversing his acquired mental processes that the idea of typhoid fever never enters his bewildered head. Only by prolonged contact with the patient at the bedside can he come to take a good history to make a proper examination to learn to separate the wheat from the chaff of the patient's complaints all of which must precede the interpretation and the treatment of the existing disorder.

The so-called case system of teaching has become highly developed and popularized in

who gets an impression that the diagnosis which an autopsy may confirm or otherwise is the only thing of importance, and treatment for the most part futile. Meanwhile the patients in their homes, in the dispensary even those in the wards, would like to know what these professors who admittedly are having difficulty in telling without looking at the organs what certain people died from, are going to do to relieve their individual back aches or troublesome coughs—and perhaps it would be just as well to go to a chiropractor next time. Indeed it takes a good deal of explaining to make clear that a lumbar puncture, bismuth studies under the fluoroscope a blood urea examination, metabolism observations, Wassermann tests, and electro-

law since in the legal profession one argues on the basis of authority and accumulated testimony in accordance with which satisfactory judgments can be rendered and punishments meted out without even seeing the culprit. But the medical profession—

ercise in medical diagnosis far superior to the old time quiz, when carried far. It has the great danger of making logicians of the students, rather than practical physicians. There is some danger lest the student be led to feel that it is unnecessary for a diagnosis, to examine the patient oneself—someone may get the history, another make a physical examination still others supply the X-ray findings, the laboratory tests, and so on, while all that the modern physician needs to do is to sit and expound as did the mediæval anatomist while the barber did his dissections for him. Excellent as they may be, there is

his malady. All too often alas, the knowledge thereby gained falls in any way to make him more comfortable or to prolong his expectation of life. The patient submits to all this and is very glad to know in the abstract, that diagnosis has become a laboratory science which employs the modern principle of piece work, and that the medical profession looks forward to the prevention of many existent diseases from which posterity will be exempt—but meanwhile, doctor what can you do to relieve my present discomforts so I may get back to work?" He is inclined like the Irishman to ask, "What has posterity ever done for me?"

THE HOME TRAINING IN MEDICINE

The curriculum in all of our schools still retains one essentially practical clinical course to which attention may be drawn—a course forced upon us by boards of registration, else even this might be curtailed or lost. It exists in the case of obstetrics, for no student is allowed to get his degree unless he has actually himself supervised a certain number of

— and so on the students robbed of

so that the natural end of all such cuts is, that dead or alive they will become swallowed in time by the general profession distasteful as the dose may be.

METHODS OF TEACHING

Unquestionably what chiefly influences the direction of its growth is the way in which Medicine as a whole is taught—the way in which its various subdivisions are presented to the student and the relative stress laid upon them. Whatever their spirit of altruism most of our students enter the profession as a means of livelihood and are likely to be influenced by what seems to them given an ordinary degree of ability to be the most likely road to an income-producing end whether it be as a laboratory worker or public health official, or physician or surgeon, or specialist of any sort. A disproportionate amount of teaching or better and more personal teaching in one subject over another,

direction the larger number

The periodical turnover in our curricula is an evidence of the fact that faculties show a perennial dissatisfaction with existing conditions, and strive each of them to find the proper average allocation of subjects little realizing that it makes no great difference—that the fault lies with us the teachers, not with the curriculum for Medicine can be successfully taught from many angles if only students are properly stimulated and encouraged to observe and think and do for themselves. But what has become particularly apparent of late is that the curricular tree has become overloaded by grafting upon the clinical branches an undue profusion of special

to forget, or to overlook entirely the source of origin of the specialty in general Medicine.

There has been a great reaction against this, and our supposedly more progressive schools are engaged in lopping off a number of these clinical branches. Some schools in

deed have come to pay so much attention to the root and stem that if we do not beware the top will be cut back so far that there will be neither foliage nor fruit—no medical practice whatsoever—and thereby encouragement will be given to the growth of every conceivable form of quackery which will spring up around us as have the schools of the chiropractor to fill the depleted ranks of the profession and the indifferent public is probably worse off than it was before.

Reforms are often necessary but there are no schools for reformers. They like the physicians of the Middle Ages, are inclined to administer such drastic treatment that the object of the reform whatever it may be, relieved of the existing ailment is left subject to other and more serious ills. Much needed as he is, the reformer rarely advocates homeopathic doses or gives a chance for the malady to be would correct to be overcome by natural processes. So far as our diminishing supply of family doctors is concerned, there are many who have come to feel that it would be better for us to send out after two years of clinical study alone with some additional

terests of the profession in its campaign for sanitary measures, is likely to emanate.

TEACHING WITHOUT THE PATIENT

It is a curious commentary on our methods that while we have come to emphasize the importance of teaching the preclinical sciences by practical laboratory exercises so that the student may at least have some first hand knowledge of the scientific method and may learn to interpret and observe for himself we have tended if not to abandon, at least to postpone to the end of the course, these very methods so far as the clinic is concerned. To be sure we have long outgrown the time-honored quiz as the basis of teaching than

vision, has seen less of complicated laboratory methods and more of the handling of sick people afflicted with the common everyday minor injuries and maladies. Otherwise we shall utterly abandon this all-important work to quacks and charlatans, who may become very skillful at it, in spite of their chicanery. I am not at all sure but that, for most of our schools, some measure at least of the French system would be best, whereby from the very outset of their course medical students are brought in direct contact with patients, and the laboratory courses are given conjointly and possibly prolonged throughout the four years.

We must somewhere and somehow strike a middle ground between over training in the laboratory and under training at the bedside or the reverse. Certainly at the present time our graduates—many of them at least—no longer feel that the rôle of the country doctor or even the general practitioner in the town or city is at all an alluring one even a possible

washings, and rather than dig deep for gold we prefer to look elsewhere for novelties and chance findings.

The interest of the students in these two particularly essential subjects has unquestionably flagged for they naturally reflect the attitude of their teachers. There is no better illustration of this than the fact observed in many hospitals that the physician is less apt than formerly to follow his patients to the operating room and more apt to be seen

has been taken by the radiographer who is more often on hand to see his diagnoses confirmed or otherwise. This may be for the reason that the disclosures at the operating table relate to regional pathology and the surgeon rarely exposes lesions which will enlighten those interested in blood urea, the Wassermann reaction, calorimetric or electrocardiographic estimations.

THE PHYSICIAN-SURGEON

Does this not mean that the surgeon has become the internist, or put another way that the internist (as the physician was once called) has come to do his own surgery? If this be so it behooves the surgeon to accept the fact that he must be primarily a good physician,—and the physician, loth as he may be to admit it, that he has undergone a metamorphosis. A year ago this College gave an honorary fellowship to the professor of medicine of the University of Stockholm who had evolved an operative method, entailing great skill whereby the adherent lung may be completely collapsed in the treatment of pulmonary tuberculosis. A distinguished member of this College whose name we perpetuate by an annual oration first conceived the idea of putting the diseased lung to rest, but it remained for Professor Jacobaeus, a physician to add a further and important step to the procedure by the intrathoracic division of pleural adhesions—a step which had not been undertaken even by so imaginative and radical a surgeon as was John B. Murphy.

This, indeed, was a very significant and unusual occurrence but, properly interpreted the giving of this fellowship was merely an

unduly long and expensive entirely disproportionate to any possible returns to be gained from a rural practice.

STRESS UPON BIOLOGY RATHER THAN ANATOMY AND PATHOLOGY

The present stress laid in this country upon the preclinical laboratory courses particularly those in chemistry and physiology has without doubt greatly influenced the entire point of view of the physician, who must have a calorimeter and an electrocardiograph with a technician to operate them, if only to keep in fashion, fittle realizing that they are scarcely more than research instruments. There has been much talk about the modern physiological schools of physic and surgery and I presume this means that it is less fashionable for the clinicians to grub in the pathological and anatomical laboratories than formerly. Anatomy and pathology just now appear to the unimaginative to have been thoroughly explored the pioneers have taken the surface

this invaluable experience. On the contrary it would be an admirable thing if the principle could be extended and every student, before his graduation required under the control and supervision of his teachers or the district physician of the community to engage in an

plemented perhaps by a microscope and a few aniline dyes. In this way he might learn something at least of the living conditions which mod-

only meets

all of the

precision supposed to be necessary for a diagnosis. It is a leaf one might take from the book of certain of the training-schools for nurses whose candidates must prove their capacity to engage in actual home-practice before they can qualify for a degree. One of our highly trained young physicians, long time

his summer on an island where was a large summer community and in the absence of any local physician he had volunteered to hold office hours and prescribe for the needs of his fellow sojourners, his principal armament being a thermometer his microscope,

Different countries—indeed, different parts of the same country—vary greatly in the attitude of physician or surgeon toward their problems. This past summer during an all-too-short service as *locum tenens* for Mr. George Gask at St. Bartholomew's Hospital, I have had a most illuminating experience which has left me with the impression that the British student gets a more practical clinical course based upon far better training in anatomy and gross pathology than do most of our students and that he is far less inclined to lean upon laboratory accessories in making his diagnosis. He, for a longer time and more intimately is brought in contact with the 90 per cent of human ailments upon which complicated laboratory tests have no special bearing and through practical experience is apt to arrive at a reasonably sound conclusion in regard to his patient's disorder and have a shrewd idea of the appropriate form of treatment. True, he may miss some of the more rare conditions, for which after all, little can be done therapeutically—conditions which our students, with their vastly better laboratory facilities, might recognize in all likelihood. But, should we put side by side at work in a small town the average product of these two methods of teaching I am inclined to think that the former would be the more resourceful, and exer-

its average product

THE SURGEON IN OTHER COUNTRIES

It is a curious anomaly that the British surgeon taken as a whole is probably in practical ways a better trained physician than is

CARE OF THE MINOR AILMENTS

One looks in vain in the curriculum for a course on the common sense treatment of minor ailments. It has been said by a wise and philosophical lay observer of the profession that so far as he can see the only difference between the so-called "practical" doctor and the "scientific" one who has had a thorough laboratory training, is that the latter is more likely to cure his patients. But with all personal sympathy for this point of view the community particularly its rural portion, still has an enormous need for the common sense practitioner who for his four undergraduate years, under careful super-

craftsman who except for the external parts of the body makes little or no pretense at diagnosis but expects the "internist" often without any expression of an independent judgment to show him the way

vision, has seen less of complicated laboratory methods and more of the handling of sick people afflicted with the common everyday minor injuries and maladies. Otherwise we shall utterly abandon this all-important work to quacks and charlatans, who may become very skillful at it, in spite of their chicanery. I am not at all sure but that, for most of our schools, some measure at least of the French system would be best, whereby from the very outset of their course medical students are brought in direct contact with patients, and the laboratory courses are given conjointly and possibly prolonged throughout the four years.

We must somewhere and somehow strike a middle ground between over training in the laboratory and under training at the bedside or the reverse. Certainly at the present time our graduates—many of them at least—no longer feel that the rôle of the country doctor or even the general practitioner in the town or city is at all an alluring one even a possible one, so dependent have they become on complicated laboratory findings in arriving at a diagnosis. Unquestionably there is an economic element which also enters into this for a training in Medicine at the present day is unduly long and expensive, entirely disproportionate to any possible returns to be gained from a rural practice.

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The interest of the students in these two particularly essential subjects has unquestionably flagged, for they naturally reflect the attitude of their teachers. There is no better illustration of this than the fact observed in many hospitals, that the physician is less apt than formerly to follow his patients to the operating room and appears to be less eager to be called in to see them during the operation. There is also a tendency to be more often on hand to see his diagnoses confirmed or otherwise. This may be for the reason that the disclosures at the operating table relate to regional pathology and the surgeon rarely exposes lesions which will enlighten those interested in blood urea, the Wassermann reaction, calorimetric or electrocardiographic estimations.

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aware by societies of physicians.

There are however certain exceptions in the case both of individuals and of special societies,—men who without disrespect are called surgeon-generals of army navy or marine corps are apt to hold membership in societies both of physicians and surgeons even though, like the lamented Gorgas, they

to so-called neuro-surgeons, to the unquestioned benefit of those who do and those who do not care personally to employ operative methods of treatment. It has made the surgeons strive to be better neurologists, and

cely will ever become so as to let the surgeon as to let operative therapy fly away with itself and jump over the moon.

TENDENCIES IN PHYSIC AND SURGERY

May I indicate the direction of our present drift, as physicians and as surgeons by citing two recent examples from my own clinic—they are extreme examples, I admit but they will serve my purposes. Patient Number One was referred for diagnosis from a sanitarium which she had entered because of headaches and where she had had a long and expensive sojourn. She brought with her a sheaf of records detailing special studies, made by different people on her blood (even to the coagulation time) cerebrospinal fluid stools, fields of vision, metabolism alveolar air and carbohydrate tolerance. It was an impressive

gland administration without benefit, she was finally advised to undergo an operation and sent here for that purpose. So far as we could determine, she was an overconscientious and overworked medical librarian greatly in need of a long postponed vacation who incidentally had been reading at odd hours a popular book on the ductless glands.

In contrast to this, let us turn to the surgeon-specialist and his outstanding fault, in that he often fails to see the patient whole. At the moment of this writing, Patient Number Two has entered the hospital—a poor fellow who for several years has been having frequent urticaria attacks, associated with a vivid olfactory impression. Meanwhile, he has had nine intranasal operations in separate sessions—a septal resection, ethmoiditis, sphenoid and both sinuses opened and drained, turbinates removed and finally all his teeth extracted. Of course we smell with our noses, the patient complained bitterly of a disagreeable odor *ergo* nasal operations. What could be more simple? That he had during all this time an homonymia hemianopsia was not

to an extreme whether it be in rhinology gynecology neurology or what you will. And when the specialty removes itself from contact with general medicine and retires to an isolated hospital given over to a single class of cases it is a danger still more difficult to avoid. Indeed a ward in a general hospital, so given over may become no less a place of isolation with its inevitable narrowing tendencies.

A wise physician and teacher in discussing internal medicine as a vocation once said that the manifestations of almost any one of the important diseases in the course of a

pital, however inconvenient for the attendants, that conditions represented by the specialists shall be scattered in the wards among the patients still grouped under general surgery so that staff, house officers, nurses and students alike shall at least continue to have some due sense of proportion regarding general surgery and surgical specialization, and the relation of both of them to Medicine.¹

THE RÔLE OF THE COLLEGE

This College of Surgeons in its short life has assumed some very responsible functions. It is playing a not unimportant rôle in international affairs by bringing together through

from each other. Another most important task it has undertaken is to improve, and in a measure to standardize the work done in our larger hospitals. The modern Survey with public ventilation of its findings is one of our most advantageous methods of bringing about reforms. So our hospitals, some seven hundred in number which have over one hundred beds each, have been classified with the result that improved methods of organization have been adopted which have enormously safeguarded the patient—particularly the patient destined to undergo the hazards and aftermath of an operation. It has been an expensive and laborious task, this survey, but a task well worth while, and it is now to be extended so as to include the smaller community hospitals of over fifty-bed capacity which are far and away more numerous.²

The College, too, has from the outset taken a vigorous stand against that abomination which prevails, it is said in some parts of the country to such an extent that public confidence in the profession has been seriously shaken. It is a matter which bears some relation to these very trends of physic and sur-

gery which I have endeavored to make clear earlier in this address—the surgeon becoming a pure operative technician, incapable of making a diagnosis—the physician, impoverished in therapeutic resources and with so poor a conception of surgery that he will let out his patient to the lowest bidder willing to operate at his dictation, and divide the purse.³ This takes us back to the abuses of the Middle Ages. It is an abuse which could not possibly exist in any community if the surgeon was trained to make his own diagnosis and if the physician would refuse to employ a surgeon incapable of arriving at an independent opinion regarding the necessity or advisability of an operation. For such a surgeon is apt to be equally neglectful of what is often the most important part of every surgical procedure—the after treatment. The physician who lends himself to such a practice is in the position of one who prescribes a dangerous drug to his patient without knowledge of its dosage or action, for there is no drug in the pharma-

mand something more than the mere report upon a fixed number of major operations successfully performed but should require, as well, information as to whether the diagnosis of these cases were the result of the candidate's own personal observation, or whether they were made for him by another.

We have seen that the present trends affecting the physician and surgeon are, on the one hand toward preventive medicine and good nursing which lessen the importance of drugs in therapeutics on the other in surgery an ever increasing subdivision and specialization which tend to magnify the importance of mere handicraft. Prevention it is true can also be applied in surgery. Many industrial accidents can be prevented. The rule of safety first can be followed. There would be no more gunshot wounds if fire-arms and war were abolished. If we can finally stamp out tuber-

¹ It may be noted that 75 per cent. of the one hundred best hospitals had adopted by 1910 at least the minimum standards of accountability whereas in 1905 only 5 per cent. of the 100 hospitals surveyed had been accepted.

² It is significant that persons of some of the activities the College has engaged in, that is to say, the selection have been adopted by many State legislatures.

culosis and eliminate cancer there will be far less for the surgeon to do. If women did not have children. If people did not drink. If we could only keep the policeman off his feet, the housemaid off her knees, the miner off his elbows, the aviator out of the air, the boys away from football. If all children in goitrous districts were given a little iodine, there would be less need for the surgeon. But we do not yet live in the Isle of Utopia, and however much the need of the physician may be less-

tritional disorders and perhaps goiter the surgeon will continue to be needed and I can not see but that he must become a better and better physician

When physicians acquire a more intimate knowledge of surgery fewer people in need of operative procedures will be turned over to the surgeon too late after delays caused by an inordinate number of unnecessary laboratory procedures. When surgeons are required to have a thorough grounding in general medicine before practicing their handi-craft, fewer unnecessary operations will be done and many of the evils which exist in their professional relationship with physicians will be eliminated.

All of which has been said as well and much more briefly by Lanfranc "No one can be a good physician who has no idea of

Medicine "

THE ANATOMY AND IDENTITY OF "ENCYSTED AND 'INFANTILE HERNIA

By ALEXIS V. MOSCHCOWITZ, M.D. F.A.C.S. New York City
 Attending Surgeon, Mt. Sinai Hospital

MY first recollection of the terms "encysted and infantile" hernia dates back to my student days, and more particularly to that well-known

inguinal hernia, namely congenital hernia into the funicular process, infantile hernia and encysted hernia. I studied these illustrations with requisite care and in due time flattered myself that I had mastered their intricacies. Skepticism as to the correctness of these illustrations was aroused by the

process, the testis was located posterior to the hernial sac, and that only in the sole remaining one, namely in the infantile hernia, was the testis located in front of the hernial sac.

In the course of time and more particularly after I had the opportunity to study cases by personal observation, my views began to crystallize themselves. However when I began to compare the knowledge thus gained upon the operating table with a study of text books on embryology and surgery, I was again confused. Finally I arrived at the following conclusions:

1. That the nomenclature of the subject is archaic.

2. That the older observers, such as Hey, who first coined the word "infantile" hernia, and Sir Astley Cooper who first coined the word "encysted" hernia, while they may have been clear in their conception of the cases, were certainly not clear in their description.

3. That the indefinite statements of these early authors have been perpetuated by subsequent writers and as I believe, mostly from a fear of exposing their ignorance.

In a chapter on hernia written for Johnson's *Surgical Therapeutics* in 1915 I made the following statement:

"The term 'infantile hernia' is another misnomer. Some authors describe a hernia in which the maldevelopment is practically identical with that of an encysted hernia but the hernial protrusion instead of becoming invaginated into the preformed lower sac, descends behind it to this form they have applied the vague term 'infantile hernia'. I see no necessity for this subdivision there is no material difference between the two forms of hernia.

I had intended to convey that there is no difference between encysted and infantile hernia. A recent incident has led me to believe that there is still confusion in regard to this matter and it is my present purpose to clarify the subject as far as I am able to do.

For a more ready understanding of this abnormality of the hernial sac, it will perhaps be preferable to subject to a review all of the abnormalities of the hernial sac, as they can all be reduced to a fault in the closure of the processus vaginalis. As is well known the testis in its descent into the scrotum is always accompanied by or according to some authors even preceded by an outgrowth of peritoneum that has received the name processus vaginalis peritonei. After the descent of the testis has become complete certain retrograde changes occur in this vaginal process. It becomes shut off above at the upper or abdominal end and below just above the testis while the intervening portion becomes obliterated, and remains as a fine cordlike structure within the confines of the spermatic cord. The distal portion persists, and becomes the tunica vaginalis testis. The drawing as shown in Figure 1 would therefore represent this condition.

The great frequency of oblique inguinal hernia has led some observers notably Murray to the belief that many (if not all) of these hernias are due to an imperfect closure of the vaginal process at the upper end, and are therefore of a congenital nature. Tempting as

culosis and eliminate cancer there will be far less for the surgeon to do. If women did not have children if people did not drink, if we could only keep the policeman off his feet, the housemaid off her knees, the miner off his elbows, the aviator out of the air, the boys away from football. If all children in goitrous districts were given a little iodine, there would be less need for the surgeon. But we do not yet live in the Isle of Utopia, and however much the need of the physician may be lessened through the agency of preventive medicine, by eliminating disease as typhoid has been largely eliminated, and yellow fever and as malaria can and will be, and many nutritional disorders and perhaps goiter the surgeon will continue to be needed and I cannot see but that he must become a better and better physician.

When physicians acquire a more intimate knowledge of surgery fewer people in need of operative procedures will be turned over to the surgeon too late, after delays caused by an inordinate number of unnecessary laboratory procedures. When surgeons are required to have a thorough grounding in general medicine before practicing their handicraft, fewer unnecessary operations will be done and many of the evils which exist in their professional relationship with physicians will be eliminated.

All of which has been said as well and much more briefly by Lanfranc. No one can be a good physician who has no idea of surgical operations, and a surgeon is nothing if ignorant of medicine. In a word, one must be familiar with both departments of Medicine."

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this theory is, it falls by the fact, that compared to the number of unafflicted individuals the sum total of persons afflicted with a hernia is after all very small. The majority of sur-

end it occurs opposite the internal inguinal ring so that when complete the peritoneum is flush with the abdominal parietes, without any discoverable dimpling.

If a scrotal hernia forms in such a normal case, it follows the direction of the cord and lies in front of it. It can be illustrated diagrammatically as is seen in Figure 3.

The obliteration of the processus vaginalis as outlined above in brief is subject to various maldevelopments.

1. CONGENITAL INGUINAL HERNIA

Let us assume the following condition. The testis has descended fully into the bottom of the scrotum accompanied by the normal processus vaginalis but at this stage the course of normal development has stopped, i. e. the processus vaginalis has failed to become shut off at both the testicular and ab-

dominal ends. The reason why the name of congenital inguinal hernia is a misnomer is, that it pre-empted the word "congenital" for this one particular subvariety of congenital hernia, whereas there are a number of other hernias, which are also congenital, inasmuch as they depend on an antenatal formation.

If the task were assigned to me to rewrite the nomenclature of these malformations, I would have no hesitancy to call this particular subvariety a "hernia into the vaginal process." This name would describe the hernia fully and properly in all detail. Regrettably this name has been erroneously pre-empted by another subvariety as will be seen later. The truth, however remains unequivocal, namely that this is the only true "hernia into the vaginal process."

The sac of this hernia has certain well-marked characteristics, which differentiate it from an acquired hernia. These are that the sac is very apt to be exceedingly thin so that its isolation in the course of operation is apt to be much more difficult. Not infrequently there are to be seen ridges and elevations within the lumen of the sac, which are very probably abortive attempts on the part of nature to effect a closure and obliteration.

The principal characteristic of this hernia

effort to force intra-abdominal contents into the hernial sac in order to form a complete scrotal hernia.

This is the hernia which has received the time honored name congenital inguinal

hernia. It is the hernia which may find their way into the sac before during or shortly after birth. On the other hand they may not find their way into the sac until late in life or never. It is only in this manner that we can account for those cases which come only late in life though very soon after the occurrence of a hernial protrusion to operation at which the presence of the congenital malformation, as above described is recognized.

Another and perhaps more important rea-

2. HERNIA INTO THE FUNICULAR PROCESS

As was just seen in the "congenital inguinal hernia" so called, the vaginal process of the peritoneum which accompanies the testis in its descent into the scrotum, has become shut off neither at its testicular nor at its abdominal end nor has the intervening portion become obliterated. Let us now assume a condition in which the vaginal process has become shut off only at its testicular end and the part in juxtaposition to the testis forms the tunica vaginalis testis. On the other hand the abdominal end has remained patent, and the intervening portion has not become obliterated. If now intra-abdominal contents find their way into the unobliterated portion of the sac, we have before us a hernia, which, and incidentally also erroneously has received the

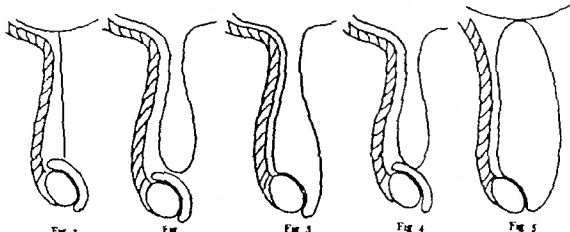


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 1. Diagrammatic illustration of a normally descended testis, showing the shut-off peritoneum, normal tunica vaginalis and cord remaining after the obliteration of the processus vaginalis.

Fig. 2. An ordinary scrotal hernia.

name of a hernia into the funicular process" (Fig. 4).

If this hernia is now compared to an ordinary acquired scrotal hernia (Fig. 5) there is evidently such a striking similarity between the two that it becomes a matter of more than ordinary difficulty to discern any great difference between the two. In fact, the difference is so slight that I have arrived at the conclusion that many cases are overlooked and unrecognized and are classified under the heading of ordinary acquired scrotal hernia.

The differences are the following: (1) On the one hand, the funicular process is a

ness as the accident is of no consequence no further attention was paid to it, and the case is put down as an ordinary scrotal hernia.

Anatomically speaking the name which is ordinarily given to this hernia, namely hernia into the funicular process, is a misnomer. In a strict sense of the word the hernia vulgo known as the congenital hernia is the only true hernia into the funicular process. I do not know that I can give an accurate name, and one which would be sufficiently descriptive possibly hernia into the suprataluncal vaginal process may do.

3. ENCYSTED HERNIA

Let us now assume that instead of the distal end as in the condition just discussed the proximal end of the processus vaginalis has become shut off and we will have a condition which can be illustrated diagrammatically as in Figure 5.

The diagram is as follows:

— inguinal hernia, and definitely settled. Surprising as it may be, this is far from true. The literature contains many diverging views.

Oscar Frankl (1) studied the subject with great care and analyzed the literature up to his time, and also added the experiences

slender cord which remains behind after the obliteration of the processus vaginalis is absent.

It may now be asked, how can a surgeon recognize a hernia of this nature upon the operating table? A little reflection as to the mode of origin of the sac of this hernia will immediately render it clear that even though the sac and the tunica vaginalis are two separate cavities, the serosa which makes up these cavities is really one. In other words one can not be separated from the other.

gained by his own observations and found the following. Camper (2) states that the obliteration of the processus vaginalis begins at the upper pole of the testis, and that it proceeds in an upward direction, up to the internal inguinal ring. Jarjaway (3) states that the obliteration begins at the middle and proceeds in both directions. Fere that it begins in the region of the external inguinal ring and proceeds both upward and downward. Kocher

inclined to accept the theory of Sachs, but in view of the fact, that he has found that if there exists a complete obliteration at the middle of the processus vaginalis, there is

upon the previously proven facts (1) that numerous examples exist, at which only the

to demonstrate in the sacs of so-called congenital hernia a very definite ring approximated at their middle somewhat as is illustrated in Figure 6. In fact I have seen three cases in which this raised ring was the cause and seat of a pronounced strangulation. It is even quite possible that the closure can begin at several points this to my mind is definitely proven by the findings of several so-called hydroceles of the cord in the same individual and also by the finding of the so-called rosary hernial sacs, which to my mind

process. One thing is certain namely that

has ever been dissected and described. On the ontical grounds it is somewhat

1
1
... must come down in front of the cord and vaginal process, and never behind these structures, nor between the two. In other words the hernia can be graphically represented as in Figure 7. It is but proper to mention that as far as I know this condition has never been described, though of course there is no reason whatsoever why it should

as

"

(1, 2, 3)

If a hernia now forms a portion of the peritoneum lining the general peritoneal cavity protrudes into the completely shut off sacral sac. It is this hernia which has received the somewhat ambiguous name of "encysted" hernia (Fig 9).

In operating upon such a case one is surprised, on incising the sac, to find at first no hernial contents indeed not even a com-

... the peritoneal wall is raised the true sac of the hernia is found bulging into the first sac.

good sized hydrocele. There is however this one important difference namely that the fundus of the hernial sac is densely adherent to the upper part of the hydrocele as a matter of fact being one they cannot be separated from each other.

This is an exceedingly rare variety of hernia, but I have no hesitancy in stating that many cases are overlooked a not at all surprising matter when one considers, that, surgically speaking all the difference between

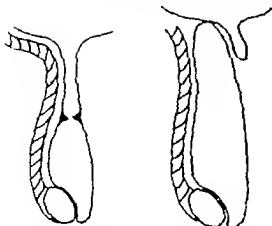


Fig. 6

Fig. 7

Fig. 6 Processus vaginalis with congenital ring form.

Fig. 7 Hernia in front of an encysted hydrocele

this rare form and the somewhat more frequent ordinary inguinal hernia complicated by an ordinary hydrocele of the tunica vaginalis testis, hinges upon the ease or difficulty of separating the two structures. I

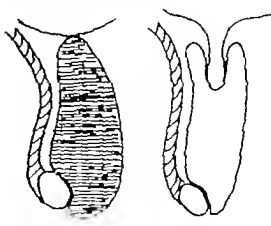


Fig. 8

Fig. 9

Fig. 8 Encysted hydrocele

Fig. 9 Encysted hernia.

always on the lookout for this possibility whenever I operate upon a large hydrocele with or without a manifest hernia. It is not impossible that I am in error for as already stated the criteria upon which I base my diagnosis are only two viz. an invagination of the hernial sac into a hydrocele sac, and the impossibility to separate the two from each other. I have no hesitancy in stating that this is the hernia which Sir Astley Cooper described under the name of "encysted hernia." One or two of his sentences are not quite clear and lack his usual perfect descriptive style. Cooper (6) writes:

"On opening the tunica vaginalis instead of the intestine being found lying in contact with the testicle a second bag or sac is seen inclosed in the tunica vaginalis, and enveloping the intestine. This bag is attached to the orifice of the tunica vaginalis, and descends from thence into its cavity. It generally contracts a few adhesions to the tunica va-

ginalis, while its interior bears the character of a common hernial sac.

The idea which I have formed of the nature of this variety of hernia is, that the tunica vaginalis, after the descent of the testis becomes closed opposite the abdominal ring, but remains open above and below. The intestine descends into the upper part, and elongates both the adhesion and tunica vaginalis, so as to form it into the bag which descending into the tunica vaginalis below the adhesion, and becoming narrow at its neck, though wide at its fundus, receives a portion of the intestine which in the following case was too large either to be returned into the abdomen, or to retain its function whilst it continued in the sac."

I have purposely copied verbatim Cooper's description of this form of hernia. Barring a few slips of minor importance which are perfectly excusable for the state of knowledge of embryology in his time, there is no doubt that Cooper intended to describe a hernia in which the true hernial sac bulged into a lower hydrocele sac, both of which were adherent, in fact were one.

4. INFANTILE HERNIA

In the chapter on hernia previously mentioned, I made the following statement in dis-

It is to be noted that in Cooper's time the external ring was known as the "ring." The term "ring" was used by Cooper to describe the hernia in question when he said of "hernia in the femoral process."

Cooper probably thought first, that the one was congenital hernia, and the other, that the one was acquired hernia.

cussing "infantile hernia," which bears repetition.

"The term 'infantile hernia,' is another misnomer. Some authors describe a hernia in which the maldevelopment is practically identical with that of an encysted hernia but the hernial protrusion instead of becoming invaginated into the preformed lower sac, descends behind it to this form they have applied the vague term 'infantile hernia.'"

I see no necessity for this subdivision there is no material difference between the two forms of hernia."

I thought I was extremely guarded in my

misgivings whether I made myself perfectly clear. At the same time, I thought a brief mention at least appeared to be justified. Much to my regret even this guarded statement has been misunderstood. I determined to trace once more the term "infantile hernia" to its original source.

Hey (7) used the name "infantile hernia" for the first time in literature. Possibly the name suggested itself to him because the

as follows

"I found the tunica vaginalis was continued up to the abdominal ring and inclosed the hernial sac adhering to that sac, by a loose cellular substance, from the ring to within

only the circum or head of colon. Having removed the proper hernial sac I examined the posterior part of the exterior sac and found it connected with the spermatic vessels in the same manner as the tunica vaginalis is, when the testis has descended into the scrotum."

Hey then goes on to describe the process of

rence of such a hernia. As it is of some importance, and in order to settle the question, I may be permitted to copy his explanation verbatim. It is as follows:

"In the hernia which I am describing, the intestine was protruded after the aperture in the abdomen was closed and therefore the peritoneum was carried down along with the intestine and formed the hernial sac. It is evident also that the hernia must have been produced while the original tunica vaginalis remained in the form of a bag as high as the abdominal ring on which account that tunicle would receive the hernial sac with its included intestine, and permit the sac to come into contact with the testicle. (In other words, Hey describes an encysted hernia, but he spoils it all by adding another sentence which renders his idea and observation most difficult to understand—unless by the word contact he means proximity but not actual contact.)

The points of greatest importance in this description of hernia are the following: (1) that Hey called this hernia, and used for the first time the words "infantile hernia" (I have already pointed out that the term is a bad one that it does not mean anything; that perhaps Hey used it because he encountered it in an infant) (2) that Hey practically describes the same kind of hernia as Cooper described (3) that Hey antedates Cooper in the discovery and accurate description of this hernia by several years.

As a sort of commentary of the above I

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1814

LEVATOR HERNIA (PUDENDAL HERNIA)

REPORT OF A CASE¹ OPERATED UPON BY COMBINED ROUTE REVIEW OF THE TWELVE PREVIOUSLY REPORTED CASES

BY HERBERT C. CHASE, M.D. F.A.C.S. NEW YORK

IN consideration of the extreme rarity of this condition, its little understood anatomical and pathological features, and the consistent failure of all operative measures for its cure in the past, I feel that sufficient interest exists to warrant my early publication of this case, although only a year has elapsed since operation—too short an interval, of course to speak of a cure.

DEFINITION AND CLASSIFICATION

Pudendal hernia as the name implies, is a hernia located in the pudendum. The term is misleading because other types of hernia—inguinal, etc. may also have their termination there. Contrary to the usual rule the final

Where all this confusion exists it would seem timely to suggest a classification and nomenclature based on the anatomy which would give a clear indication of the exact site and structures involved. Therefore the following classification is suggested including under the broad term levator hernia all the subclasses, because as stated above the essential feature—point of exit of all these hernia—is the levator muscle and fascia.

Levator hernia

1. Congenital
 - a. Anterior to broad ligament
 - b. Posterior to broad ligament
 - c. Combined (anterior and posterior)
2. Acquired
 - a. Anterior to the broad ligament
 - b. Posterior to the broad ligament
 - c. Combined (anterior and posterior)

HISTORICAL

anatomical feature is a rent in the levator muscle and its fascia (and adhering to the rule of nomenclature in reference

Pudendal hernia is a condition of extreme rarity the case which I am about to report being the thirteenth in literature.

It has always been considered incurable and of the thirteen reported cases, attempts at

have been attempted leading to greater confusion. Some have stated that hernia, having their point of exit behind the broad ligament, should be called perineal hernia. This is obviously wrong, because, although piercing the levator behind the broad ligament, the hernia may in passing forward under the broad ligament, carry bladder with it as a part of the sac and still emerge in the labium above the transverse perineal muscles as in my case. Furthermore a hernia anterior to the broad ligament, may break away the transverse perineal muscle at its point of exit and appear at the perineum, the transverse perineal muscle being the acknowledged boundary line between pudendal or subpubic hernia above and perineal hernia below (Patient in dorsal position)

11) had seven major and many minor operations without relief.

To Sir Astley Cooper is usually ascribed priority in reporting cases of this type of hernia. However he was preceded by Méry who in 1739 reported in the *Transactions of the Royal Academy of Sciences* of Paris, the following case:

CASE 1. Reported by Méry. The hernia was found in a female 5 or 6 months pregnant—age not given. It was somewhat larger than an egg and disappeared on compression. The contents were

curing "infantile hernia," which bears repetition

"The term 'infantile hernia,' is another misnomer. Some authors describe a hernia in which the maldevelopment is practically identical with that of an encysted hernia but the hernial protrusion instead of becoming invaginated into the preformed lower sac, descends behind it to this form they have applied the vague term 'infantile hernia.'"

I see no necessity for this subdivision there is no material difference between the two forms of hernia."

I thought I was extremely guarded in my statement and certainly made no claim of ever having personally encountered one. I confess that when I wrote that article I had some misgivings whether I made myself perfectly clear. At the same time, I thought a brief mention at least appeared to be justified. Much to my regret even this guarded statement has been misunderstood. I determined to trace once more the term "infantile hernia" to its original source.

Iley (7) used the name "infantile hernia" for the first time in literature. Possibly the name suggested itself to him, because the

as follows

"I found the tunica vaginalis was continued up to the abdominal ring, and inclosed the hernial sac adhering to that sac, by a loose cellular substance from the ring to within one-half inch of its inferior extremity."

The interior or true hernial sac was a production of the peritoneum as usual and contained only the caecum or head of colon.

Having removed the proper hernial sac I examined the posterior part of the exterior sac and found it connected with the spermatic

Iley then goes on to describe the process of the normal descent of the testis, and finishes with a description of what he considers to be the true pathological explanation of the occur-

rence of such a hernia. As it is of some importance and in order to settle the question, I may be permitted to copy his explanation verbatim. It is as follows:

In the hernia which I am describing, the intestine was protruded after the aperture in the abdomen was closed and therefore the peritoneum was carried down along with the intestine and formed the hernial sac. It is evident also that the hernia must have been produced while the original tunica vaginalis remained in the form of a bag as high as the abdominal ring, on which account that tunic would receive the hernial sac with its included intestine, and permit the sac to come into contact with the testicle. (In other words, Iley describes an encysted hernia but he spoils it all by adding another sentence which renders his idea and observation most difficult to understand—unless by the word "contact" he means proximity but not actual contact.)

The points of greatest importance in this description of hernia are the following: (1) that Iley called this hernia, and used for the first time the words "infantile hernia" (I have already pointed out that the term is a bad one—that it does not mean anything—that perhaps Iley used it because he encountered it in an infant) (2) that Iley practically describes the same kind of hernia as Cooper described (3) that Iley antedates Cooper in the discovery and accurate description of this hernia by several years.

As a sort of commentary of the above I

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Fig. 1. Showing the weak points in the pelvic diaphragm above—the beginning of levator hernia laterally. R, coccygeus; c, coccygeus; l, levator ani, and s, oblique fascia.

and tender. Hager diagnosed an anterior perineal hernia (perineal) which was inflamed and also mildly incarcerated. Under local treatment these

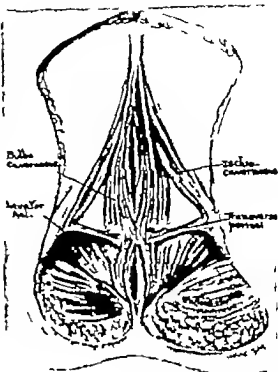


Fig. 2. Showing the subpubic triangle and its boundaries through which all true levator hernia must emerge.

Von Winckel reviewed the published cases of perineal hernia and reports the following additional one:

CASE 10. Reported by von Winckel. This patient was a female, age 51, after being in labor for 3 days, and after many attempts of delivery with forceps, she was delivered by perforce. At the age of 46 years, she noticed accidentally a swelling in the right labium which gave rise to very few symptoms in the beginning, but to many subsequently. The

abandoned and a ventral fistula of the uterus per

CASE 2. Reported by Curade. Cooper was also preceded by Curade who in 1769 in the *Annales de la Faculté de Chirurgie de Paris*, reported the following case:—The patient was a female of 26 years of age and was 6 months pregnant. On examination a lateral perineal tumor was found which increased in size on standing, or when the

Chronologically the next case reported is that of a contemporary of Cooper—Cloquet—a surgeon who has written extensively on the subject of hernia.

CASE 5. Reported by Cloquet. Under the title "*Sur une hernie vaginale*" this author publishes the following case: Female, age 22, complained of a swelling in the vulva. On examination, Cloquet

a subsequent pregnancy

Curade states that he has no doubt that the case was one of pudendal hernia. The descrip-

that there is not the slightest doubt that this case can be placed in the list of true pudendal hernia.

Nevertheless it is Sir Astley Cooper to whom we are indebted for the first detailed and complete reports of this rare condition. In his excellent monograph on hernia published in London 1807 he reported the two following cases:

CASE 1. Reported by Cooper. This case was a

reduction being accompanied by a gurgling sound. After reduction a finger could be introduced into the labium whereupon a rounded opening was noticed between the vulva and anus of the rectum. Nothing further was done but the patient immediately felt relief of her symptoms, nor has the hernia recurred since.

CASE 6. Reported by Hartmann. This operator

In this case on dissection it is difficult to differentiate it with precision from ordinary cystocele.

After reduction of the contents the tumor

pudendal hernia. It is to be regretted that in anatomy of the hernial ring is not described in detail.

a swelling in the right labium majus. The labium majus had

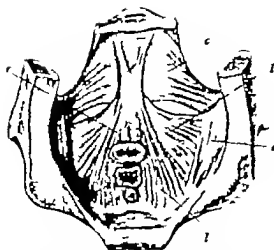


Fig. 1—Showing the exit points on the pelvic diaphragm above—the beginning of levator hernia internally. Recto-coccygeus, coccygeus, levator ani, and oblique foramina.

and tender. Hager diagnosed an anterior perineal hernia (pudendal) which was inflamed and also mildly incarcerated. Under local treatment these

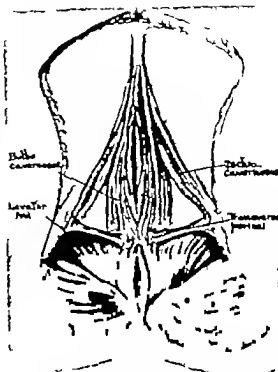


Fig. 2—Showing the "subpubic" triangle and its boundaries through which all true levator herniae most emerge.

appearance upon the surface in the labium majus. He saw one such case which had the size of a man's head—detailed description is not given.

CASE 9. Reported by von Winckel. In this case the patient was a female who had been confined a number of times, all deliveries were difficult, the

also increased in size and made quite a projection. On examination a swelling larger than an adult's fist was seen occupying the vulva and more particularly occupying the part of the right labium majus. It was situated anteriorly and to the right of the perineal body and was bounded externally by the tuberosity of the ischium, and anteriorly by the right half of the symphysis pubis. Even on cesal

Von Winckel reviewed the published cases of pudendal hernia and reports the following additional one.

CASE 10. Reported by von Winckel. This patient

abandoned and a ventral fixation of the uterus per

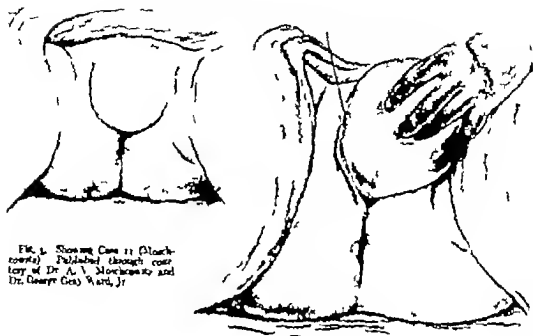


FIG. 2. Showing Case 11 (Osteocoma). Folded back through courtesy of Dr. A. V. Moravcsky and Dr. George C. Ward, Jr.

forceps at termination of first pregnancy November 18 1895. Indication for forceps not evident—pelvis ample size. Shortly after delivery a mass protruded from the vagina and coincidentally with it an enlargement of the bladder was also noted. The condition was first looked upon as one of paralysis of

The third subject upon whom an operation was taken in January 1907. The patient was told that

ly in size, it also became evident, for the first time,

trusion a particularly annoying symptom was the inability to empty her bladder unless she first reduced the hernia manually

at a cure by the abdominal route. The hernia in the depth of the pelvis was exposed; its contents were found to be the bladder and about 3 feet of small intestine. These as well as the hernial sac were drawn out, and after putting the sac on the stretch

to fulfill the intended design, however, soon after the patient was permitted to be up and about the condition recurred.

I saw that patient for the first time May 15, 1913. My physical examination revealed the following status: A well healed median abdominal scar. A protrusion in the left labrum, about the size of an adult fist was noted; this protrusion was dull on percussion and imparted an impression of transference. It was reducible, but upon the slightest attempts at reduction the patient felt an uncontrollable desire to urinate. The swelling was so



Fig. 4 Showing the levator hernia before operation. Note position of sac (through subpubic triangle) and that its internal surface is covered with mucous membrane and external surface with integument.

ing because at the very outset it prevented me from at least extricating in a thorough manner the hernial sac as I hoped to do. The small intestines were adherent in the depth of the sac and were freed.

The hernial ring was a large irregular oval, easily admitting the folded hand and was bounded externally by the ascending ramus of the pubes, and medially by the soft tissues of the bladder, uterus, and vagina. The problem of a cure, therefore, resolved itself into the question of my ability to close this opening. Neither pelvic fascia nor levator ani were available. I believe both were ruthlessly torn away at the original forceps delivery. I, therefore, deliberately carried out an operation I had evolved in advance.

side of the descending ramus of the pubes a longitudinal hiatus, easily admitting four fingers. The internal organs were negative to palpation.

The history and physical findings were not very

that the hernia was of the sliding variety involving the left half of the bladder. This was very discourag-

time larger or the hernial ring only a trifle smaller it would have been possible to close the hernial ring

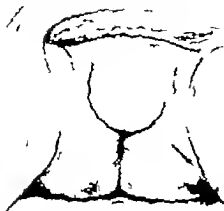


Fig. 3. Rhinoid Cane (Bladder-
cervix). Published through cour-
tesy of Dr. A. V. Blanchard and
Dr. George Gray Ward, Jr.



formed as a calculus. For a short while the condi-
tion was lessened somewhat, but a recurrence fol-
lowed very soon and the patient was operated upon
a second time. At this operation the sac was split

to, right. The previously mentioned vaginal pro-

immediately whereupon the patient was informed
that before another attempt at its radical cure could
be made it would be absolutely necessary first to
repair the fracture of the pelvis.

wound became infected and had to be reopened

rupture of the bladder was complete and in the
ureters and also an unaltered fracture of the left
pubic bone. Since that time the patient was operated

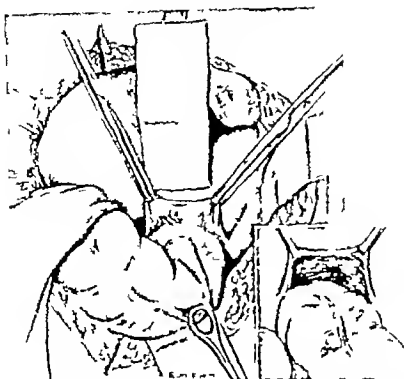


Fig. 6. Abdominal route. Showing the sac pulled up partly after reduction of loop by traction. Insert shows peritoneal edges of sac held up with forceps showing below after circumferential incision of margins as indicated by dotted line in large picture.

rectum, and also gave the sense of bearing down formerly ascribed to falling of the womb. To repeat

the broad ligament and disappear through the

the condition

finger downward into the sac and had the nurse uncover the inner side of the left thigh, and identify

destination being the subcutaneous tissue of the upper adductor region of the thigh rather than the labium.

Gross surgical anatomy. The protrusion undoubtedly occurred through a rent in the levator ani muscle and passed through the triangle, bounded externally by the ischio-cavernosus, internally by the constrictor cunni and posteriorly by the transversus perinei and along the left lateral wall of the vagina

opening was bounded anteriorly by the posterior reflexion of the left utero-sacral ligament laterally and posteriorly by the rectum. The sigmoid being fixed at its point of continuation into the rectum appeared to slide down along the posterior surface of



Physical examination General survey—an obese, type A man of middle age, height about 5 feet, 4 inches, color slightly cyanotic, facies slightly sugary.

uterus.

completely, as it was the lateral portions only could be obliterated, and no matter what I did there still

days. Temperature and pulse however remained normal. Primary union resulted and the patient was discharged June 10, 1913.

I kept the patient under observation and for some time after the operation she was very comfortable. However, about one year after the operation, I found on examination that the uterus was again in its

dimensions

Hospital, in whose service the following case was operated upon by me—I will add to the twelve cases previously reported the thirteenth, as follows:

Mrs H A Woman's Hospital History No 26906 admitted December 6, 1930 discharged February 2, 1931 Chief complaints (1) Pain of bearing-down character in lower right quadrant of abdomen (2) bearing-down feeling in the right labrum and vagina (3) sense of pressure and bearing

etc.

The family history is negative. Patient has had no illnesses, except diseases of childhood. Menstruation

History: 12 months intervals. Menstruation 14 years, youngest 17 months. All normal deliveries except the last which was a forceps delivery and patient was in labor 28 hours.

Present Complaint: Tension in the right

was continuously attended for a week. Given enemata and cathartics daily and finally bowels moved on the seventh day. At the onset of the pain the bulging of the vagina was noticed for the first time and has remained since but seemed larger during the attack. Throughout the remaining 3 months of her pregnancy the bulging was a constant annoyance and had to be held with the hand when

was used forceps. This took 2 hours. The child was normal, weighing 8 pounds. Patient was in bed for two weeks.

After delivery no vomiting or fever occurred, but the rupture got bigger and had to be held with the hand on straining, and bowel movements and urination were very painful. Since then the bulge has gradually gotten bigger requiring holding with each defecation and urination.

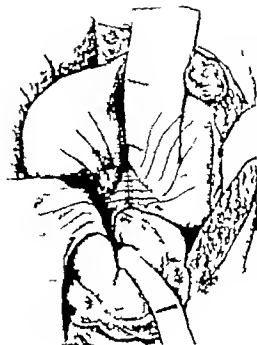


Fig. 1. Levator hernia.

Physical examination. A general survey shows a rather obese well-developed young woman of good color. Height 5 feet, 5½ inches. Weight 170 pounds. Heart and lungs normal. Abdomen obese and pendulous, otherwise negative. No umbilical, inguinal or femoral hernia.

Local examination. A protrusion was seen in the posterior part of the right labrum, the size of an adult fist. It was semi-resonant to percussion, easily reducible with an impulse on coughing. On attempts at reduction the patient felt a sense of pressure high in the rectum and a desire to urinate. When the mass bulged on coughing or straining, its mesial surface was

covered by a soft mass which came downward on the right side parallel with the vagina. When the mass was reduced the labium was left flaccid and redundant, and passing the fingers upward and inward through the flaccid labium, along the right lateral wall of the vagina an irregular oval mass could be felt on the right side of the vagina bounded medially by vagina and externally by the descending ramus of the ischium. This open



Fig. 7. Abdominal wall. Showing the fascial closure (retroperitoneal—true pelvic fascia) beneath peritoneum. Peritoneal edges not well shown above fascial split. Insert shows second row of sutures of peritoneum, unfolding the fascial layer.

extrusion of the sigmoid from the sac at the operation explained the spontaneous reducibility and freedom from symptoms in the intervals.

Closure of the ring. Needless to say no attempt was made at extirpation of the sac. Its depth, adipose

abdomen was closed by layer sutures. The patient made an uneventful recovery. Mineral oil was used for 6 months following the operation to secure daily evacuation. This is not necessary at present. The sense of prolapse and rectal irritation have never been experienced since the patient left the hospital.

Integument

Through the courtesy of Dr. George Gray Ward, Jr., chief surgeon of the Woman's

Hospital, in whose service the following case was operated upon by me—I will add to the twelve cases previously reported the thirteenth, as follows:

Mrs. H. A. Woman's Hospital History No. 26006, admitted December 6, 1930, discharged February 2, 1931. Chief complaints: (1) Pain of bearing-down character in lower right quadrant of abdomen. (2) bearing-down feeling in the right labium and vagina. (3) sense of pressure and bearing-down feeling in rectum and in bladder when coughing, straining, etc. (4) a feeling as if everything is dropping out and has to hold hand over right side of perineum when straining at stool during urination, etc.

The family history is negative. Patient has had no illnesses, except diseases of childhood. Menstruation

labor 28 hours

Present Symptoms: Twenty-one months ago when

... moved on the seventh day. At the onset of the pain the bulging of the vagina was noticed for the first time and has remained since but seemed larger during the attack. Throughout the remaining 5 months of her pregnancy the bulging was a constant annoyance and had to be held with the hand when

... 10 weeks
After delivery

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catheterization and irrigation

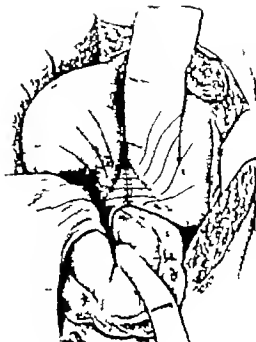


Fig. 1. Levator hernia.

semioval hernia

Local examination: A protrusion was seen in the posterior part of the right labium, the size of an adult fist. It was semi-resonant to percussion, easily reducible with an impulse on coughing. On at-

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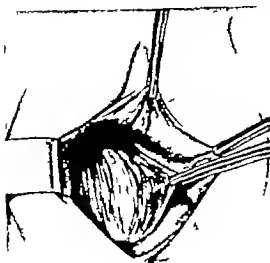


Fig. 11. Vaginal route. Showing the right levator muscle drawn over sigmoid and sac (now empty and not bulging) showing through split in levator. Light rectum is sac showing through split in muscle.

tearing a hole in the rectovesical fascia, which would easily admit three fingers. The loop of bowel having been lifted from this canal, two fingers were passed

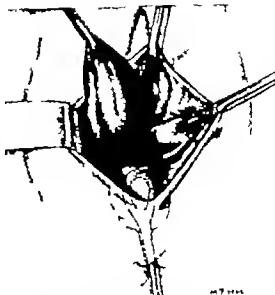


Fig. 12. Vaginal route. The sac has been separated from edges of split levator and the lower branch of split muscle pushed outward to join main body of right levator muscle and sac freed to neck. Sponge in rectum.

although cut off would remain. The fact that we were dealing with pregnancy and its accompanying ascularity was further argument against this extensive dissection. Therefore we decided to content ourselves simply with closure of the ring, leaving the rest to be completed at the second stage through the vaginal route. The bowel was drawn out of the sac and held taut and the peritoneal margins of the ring were completely circumscribed. This exposed to view the raw edges of the rectovesical fascia. This fascial opening was then closed with eight interrupted sutures of fine Pagenstecher thread. Above this a second layer was placed using six double fine Pagenstecher interrupted sutures for closure of the

ligament, were so far removed (about 2 inches) from each other that it would be impossible without extensive dissection in a very vascular area and complete mobilization of uterus and right broad ligament to close the muscular hiatus as well as

further that even if we were to close both of these openings from above, the opening in the pelvic (ischio-rectal) fascia below would remain and the sac

attached to this column by a single Pagenstecher stitch to prevent knuckling of the bowel at this point. The pelvic loop of the sigmoid was then drawn out of the pelvis and fixed by four sutures to the anterior surface of the psoas muscle and the peritoneum covering this muscle with four sutures of Pagenstecher thread (sigmoidopexy). Sterilization was then performed by removal of both tubes well into the cornua in the usual manner and closing the cornua with Pagenstecher thread. The abdomen was then closed in the usual manner—using three stay

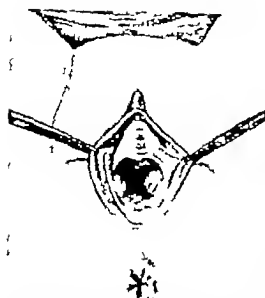


Fig. 9. Vaginal route. Showing the condition several weeks after completion of the abdominal operation. No evidence of hernia, normal perineal vagina, primary incision

(ing admitted) four fingers which could be easily pushed through it palpating the pelvic organs on the right side. A cervical sound pushed into the bladder

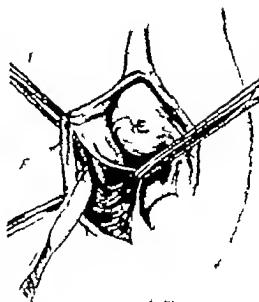


Fig. 10. Vaginal route. The dissection continued—separation of vaginal flap to expose vulvular triangle on the right side

large vulvoperineum; bilateral (sterilization) closure of hymenal ring; hysterectomy

Findings and operation. Examination under ether

otherwise negative except uterine pregnancy at third month, moderate laceration of perineum and bilateral laceration of cervix. No rectocele or cystocele

Operation. The diagnosis of prolapsed hernia having been made it was determined after consultation, that a therapeutic abortion should be done because of the strangulation of the hernia during the last labor. The fact that the patient had no living children, and further because we felt that this

hernia and the only fixed point being the recto-

vaginal route for removal of the sac and its repair of the levator fascia etc.

Stage 1. Abdominal route. Incision and curet

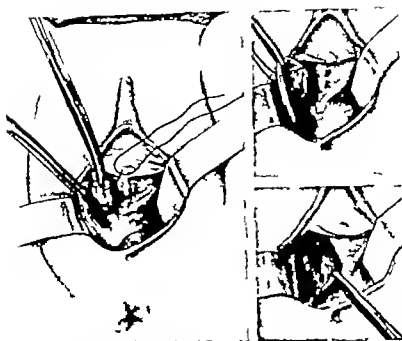


Fig. 15. Vaginal route. Showing fixation of neck of sac behind broad ligament and behind the broad bottom of the right levator base. After this step an ordinary levator myorrhaphy and perineorrhaphy was performed.

She was allowed out of bed on the eighteenth day and discharged from the hospital on February 2, 1921 (fifty-second day). The discharge note reads as follows: Abdominal incision—primary union. Vaginal incision and perineorrhaphy—solid primary union. No protrusion or bulging—relieved of all symptoms.

1. Point of entrance (or internal ring). This may be anterior or posterior to the broad ligament, giving rise to three varieties: first, anterior or direct; second, posterior or indirect; or third, a sac originating behind the broad ligament may push forward under the broad ligament and break through the levator anteriorly, thus combining features and con-

postoperative treatment has been a nightly dose of

SURGICAL ANATOMY

So many intricate and interesting problems are presented in this hernia

or variety of its beginning is at the weak point in the pelvic diaphragm internally. From a consideration of the anatomy and formation of the various layers of the pelvic diaphragm and from a study of dissections and by a reference to Figure 1, it will be seen that this weak point is at the three posterior divisions of the levator muscle. It is obvious at once that the lateral portions of the levator (*m. ilio-coccygeus*) does not overlap the central portion (*m. pubo-coccygeus*) laterally but passes onward to fuse directly with the pubo-coccygeal and recto-coccygeal raphe. This



Fig. 13. Vaginal route. Finger sac split and held open (finger passed into sac could easily feel internal closure of fascia—see abdominal route—Figs. 7 and 8).

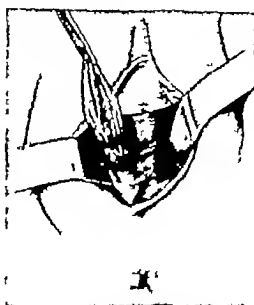


Fig. 14. Vaginal route. Transsection and ligation of sac before excision. The sac was actually ligated at a higher level than represented here.

tor explained why it had been impossible to invert the sac into the abdomen during the abdominal operation. The sac was then freed up to its neck and split open. The sac was empty, lined with peri-

Stage 2. Plastic repair. A curvilinear incision 3½ inches long was made beginning at the muscu-

betum the broadest portion of the right levator

TABLE I—ETIOLOGY

| Case No. | Author | Traumatic | Spontaneous | Age | Sex | Side | Contents | Operation and Result |
|---------------|------------|-----------|-------------|------------|-----|-----------|------------|----------------------|
| 1 to 7 of 24 | Mary | Yes | Yes | Just grown | F | Not given | Bladder | Young |
| | Carole | Yes | Yes | 23 | F | Not given | Bladder | Young |
| | Conner | Yes | Yes | 23 | F | Not given | Bladder | Young |
| | Conner | Yes | Yes | Just grown | F | Right | Intestines | Young |
| | Conner | Yes | Yes | 24 | F | Right | Intestines | Young |
| | Harcourt | Yes | Yes | Just grown | F | Not given | Bladder | Young |
| | Raper | Yes | Yes | 23 | F | Right | Not given | Young |
| 8 to 12 of 24 | Conner | Yes | Yes | Just grown | F | Not given | Not given | Young |
| | Van Winkle | Yes | Yes | Just grown | F | Right | Intestines | Failed |
| | Van Winkle | Yes | Yes | 2 | F | Right | Intestines | Failed |
| | Mechowicz | Yes | Yes | 41 | F | Left | Intestines | Young failed |
| 25 | Curtiss | Yes | Yes | 53 | F | Left | Intestines | Cured 7 years |
| | Curtiss | Yes | Yes | 64 | F | Right | Intestines | Cured 1 year |

Cases marked with () are previous cases of postnatal (acquired) hernia.

usually palpated and digitally explored in these cases. The transversus perinei muscle forms the posterior boundary of the weak triangle of cut, which is covered only by two layers of the triangular ligament (thin fascial layers). The other boundaries of this triangle, through which the hernia passes after coming through the ring (these muscles also forming part of ring borders) are the constrictor cunni internally and the m. ischio cavernosus externally.

Having traced the entrance course and exit of the various types, let us follow the sac reversely that is, from without inward in the combined type as described in case here reported and note the structures through which it passes. Covering the knuckle of bowel and bladder from without inward we have the skin and mucosa and peritoneum only. The triangular ligament, ischio-rectal fascia, levator and rectovesical fascia. In the direct or anterior variety the structures penetrated by the sac and the coverings of the sac are the same as in the posterior variety except that peritoneum only partly forms the sac and the hernia is of the para-peritoneal type. A clear understanding of these anatomical relations is necessary for a successful repair of this type of hernia.

Mechanism of occurrence. The long pelvic loop of the sigmoid fixed only at its junction with the fixed rectal portion of the gut at the end of the mesentery (opposite the third sacral vertebra) "knuckles" at this fixed point after slipping down along the posterior surface of the broad ligament. At the site of this

kinking (rectosigmoidal junction) is the weak spot of the pelvic diaphragm above (Fig. 1). In this angulated position the gut slides en masse forward and downward pouching the peritoneum ahead of it, tearing through fascia, levator etc. thus forming always the sliding type of hernia. The kinking and partial obstruction at the rectosigmoidal junction explains the rectal symptoms and their intermittent character.

ETIOLOGY

Primarily of course—

pudenda hernia says that they are congenital or acquired. Pregnancy and parturition are the factors of most import and we find that the largest majority began during labor or were noted soon after. Difficult and instrumental cases are noted and emphasized in the majority of cases. This was true of my case. It is evident that trauma is a direct and activating factor. Age naturally would fall

Winkel in discussing this point, refers to a male infant, age 6 weeks who had a protrusion through the sacrum opposite the second spinous process the size of a walnut, which bulged and increased in size on coughing and straining and which underwent spontaneous cure.

leaves a space on each side behind the broad ligament where there is no muscular covering and where the pelvic or rectovesical fascia is separated only by areolar tissue from the

entirely overlap and fuse with the pubococcygeal portion of this muscle. This no doubt explains the predominance of the posterior variety (8 out of 11 cases reported) and further the fact that only the traumatic varieties are anterior (direct trauma). The internal boundaries of the posterior variety

boundaries of the anterior variety, at the point of entrance are the uterus and bladder medially, the round ligament externally and below the vagina and the transversus perinei muscles, while the base is formed by the linea terminalis of the pelvis. The significance of the transversus perinei muscle as a boundary for differentiation between pudendal and perineal hernia has already been pointed out in the classification.

Sac and contents. The sac is obviously longer and more definitely defined in the posterior variety (i.e. in hernia originating posterior to the broad ligament). This is of practical importance because the surgical principles of high ligation of the sac and closure of ring are applicable always to this variety. This I wish to emphasize because although pudendal hernia has been regarded as a hopeless surgical problem, the posterior variety at least is always amenable to surgical repair and to the application of the two principles mentioned above. Careful examination will determine whether a given case of pudendal hernia is of the anterior posterior or combined variety. In the first place with the hernia reduced the point of entrance internally may be felt and its position relative to the broad ligament and uterus decided upon. Further, the contents of the posterior variety is usually gut alone with bladder or with

ovary and tube, and the "combined" can easily be recognized by the fact that it contains both bowel and bladder. It may contain ovary and tube also, but always bowel and bladder both of which can be recognized by symptoms and examination. The anterior variety always contains bladder. The practical bearing of recognizing the contents of the sac and type of sac (anterior posterior or combined) will be at once apparent in the description of the

In the anterior variety we have a much more difficult and different situation. The sac is less defined and only partial because the bladder which forms the contents of the sac, is only partially covered by peritoneum—laterally and inferiorly—so that the hernia is necessarily of the para-peritoneal variety. The sac is, therefore, incomplete and its removal and closure fraught with far greater difficulties. (Case 11—Moshonovits exemplifies this).

Canal and course. The posterior variety passes downward and forward perforating the rectovesical fascia, then the ischio-rectal fascia to its ring and exit to be presently described. It may pass through the levator or through the weak floor above described and pass forward guided by the ischio-rectal fascia. The posterior variety may also burrow forward and downward under the broad ligament, perforating only the rectovesical fascia and become anterior to the broad ligament before perforating the levator thus constituting the combined variety (containing both bowel and bladder). In the anterior variety the course and canal with incomplete sac is obviously much shorter passing directly downward and forward to the ring and point of exit.

External ring or point of exit. This is an irregular triangular area bounded externally

transversus perinei. It is this ring that can be

NATURE AND SIGNIFICANCE OF RENAL STASIS

By E. GRANVILLE CRABTREE, M.D. Boston
Massachusetts General Hospital

MY interest in renal stasis aside from the operative treatment of hydronephrosis has been incited through the study of persistent colon bacillus infections. Preliminary report on this work has already been published (Crabtree and Sheldon 1). In the course of these investigations I came to recognize that small degrees of stasis in the kidney existed, often associated with pain and very commonly associated with persistent infections. Further observations on pyelitis in pregnancy and stasis from renal abnormalities, together with investigations of cases of abdominal pain encountered in the Out Patient Department of the Massachusetts General Hospital and my own office work have convinced me that considerations of renal stasis from the physiological rather

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by that, determination whether the kidney is hampered in elimination of urine from the pelvis rather than whether a dilatation sufficient to term hydronephrosis exists.

Hitherto classifications and so far as I am able to determine from the literature treatment also has been based on the pathological picture presented first of all by autopsy and surgical specimen, later by the pyelogram. Attempts have been made by the urologist and the roentgenologist to determine from the appearance of the pyelogram almost entirely to the exclusion of data which is obtainable by use of the cystoscope and ureteral catheter as to whether or not a kidney is pathological. This I believe to be erroneous. As a result of this conception beginning dilatations and small degrees of change are often overlooked at a time when remedial measures could best be applied. Likewise because of incomplete knowledge of greater degrees of dilatation which are temporary in nature unnecessary destructive operations have been done. A recent classification of hydronephrosis bears evidence to

this contention. In fact this classification seems to me to be based entirely on size of the pelvis as shown by pyelogram. By it hydronephroses are divided into

- 1 Early hydronephrosis
- 2 Moderate hydronephrosis
- 3 Large hydronephrosis.

To be sure the relation between infection, mechanical obstruction and disturbance of innervation are discussed. Such a classification however misses many of the important points on which therapeutics must depend. These classifications are analogous to classifying into large bears bears and little bears. Any hunter will recognize that it is more fun to shoot the big bear. Consequently large hydronephroses have received more consideration at the hands of the surgeon and occupy a larger place in the literature of the subject. Yet these must have had beginnings and be results of factors which have been operating a long time past to produce the condition encountered.

I believe that four types of renal stasis ought to be recognized to exist between the normal kidney and the large hydronephrosis. These are

- 1 Acute stasis
- 2 Subacute stasis
- 3 Intermittent stasis
- 4 That condition known for want of

better names as relative stasis atonic dilatation (Braasch) idiopathic dilatation (Bard) and potential obstruction (Robinson) terms applied to the occasional case of reno-ureteral dilatation without obvious cause. It will be recognized that the above classification is based on the physiology of elimination of urine from the kidney rather than the degree of pathology produced.

DEFINITION OF TERMS

In order to indicate what is meant in this discussion by the terms "pelvic content" and "pelvic capacity" in the observations recorded I will define the two

of spina bifida, and was so considered by Moschcowitz in his admirable paper. Von Winckel also mentions in the same article case of a male child age 7 days, who presented along the left side of the pubis near the scrotum a mass the size of a pigeon egg which was reducible. The description is too meagre

only two cases in the male on record and the only two spontaneous cases recorded.)

DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS

Pudendal hernia should offer no great difficulty in diagnosis. There are certain essential features which make it certain of recognition. The most important are: First the hernia always appears in the posterior part of the labium majus. It cannot appear elsewhere and also come through the subpubic triangle. Second the medial half of the protrusion is covered with mucous membrane and the other half with integument. Third associated with these two features are all the ordinary signs of hernia: impulse on coughing, reducibility, etc. A consideration of the three points mentioned above will easily differentiate pudendal from the other forms of hernia—inguinal, femoral, etc. and from Bartholinian abscess. Rectocele or cystocele can never be confounded with this type of hernia.

TREATMENT

In spite of the fact that only one pudendal

greater destruction of the levator and fascia, especially where large areas of these structures

solves itself into closure of the ring, an exact understanding of the anatomy and a repair based on a knowledge of the structures involved is necessary. In these extreme cases we would suggest a transplantation of the iliac fascia with pedicled flap held between the transplanted pedicled round ligaments for closing the defect above together with a pedicled fascial transplant of fascia lata to plug the subpubic triangle below.

CONCLUSIONS

While it is obvious that no conclusions can be drawn from one case nevertheless from a

the following deductions:

1. Pudendal hernia, although extremely rare should be easily recognized (three points).
2. All cases should be divided into anterior, posterior or combined types as the basis of operation.
3. Every case should be submitted to operation.
4. A knowledge of the anatomy, the type presented and application of the principles of the operative treatment of all herniae should result in a cure in a large majority of cases.

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principles necessary to the successful cure of all herniae are here applicable, namely high ligation and excision of the sac and closure of the ring. This is particularly true of the posterior and combined types in which there is a definite sac. The anterior variety with

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DEFINITION OF TERMS

In order to indicate what is meant in this discussion by the terms 'pelvic content' and 'pelvic capacity' in the observations recorded, I will define the two

of greater degrees of dilatation which are temporary in nature unnecessary destructive operations have been done. A recent classification of hydronephrosis bears evidence to

Pelvic content is the amount of urine present in the pelvis at the time a plugged catheter is inserted into the pelvis. After inserting the catheter the plug is removed and a syringe attached. With the bladder empty to provide against suction of fluid up the ureter from the bladder if such reflux is ever possible all the urine that will flow freely and steadily into the syringe is withdrawn and measured. This is taken to indicate the pelvic content.

Pelvic capacity is measured by the amount of fluid which can be injected into the pelvis sufficient to produce pain and withdrawn. The amount withdrawn and not the amount injected represents the capacity.

THE NORMAL KIDNEY

Clinical observation substantiated by animal research has given us some definite facts regarding the secretion of urine. Variations in the renal pelvis make it impossible to state a figure which accurately represents a normal capacity.

upper limit of normal capacity. Kelly and others, 3 drams. Series finds the average pelvic capacity in the normal to be 6 to 7 cubic centimeters, average postmortem distensibility 15 cubic centimeters. This is a fair estimate of the average established by most clinical workers. I have found that it is seldom that a normal pelvis can be distended to more than 10 cubic centimeters, and use that as a working basis. The great majority of normal pelvises will not allow that degree of distention. It must not be forgotten that in certain instances in which there is congenital inequality of distribution of kidney tissue the congenitally large normal kidney may have a pelvic capacity in excess of 10 cubic centimeters, and yet be free from any evidence of abnormalities in outline. Even though the average capacity of the pelvis is in the neighborhood of 6 to 7 cubic centimeters, during excretion, it is not full to capacity. Seldom does one find more than 2 to 3 cubic centimeters of urine in the pelvis of the normal secreting kidney. Peristaltic muscular movements beginning in the

pelvis but more pronounced in the funnel portion near the pelvo-ureteral junction force small amounts of urine into the ureter. Successions of peristaltic waves carry these small quantities of urine down the ureter, from which they are ejected into the bladder so small jets. Fluoroscopic demonstration, while not entirely satisfactory has given some evidence on this subject, but series of plates taken at short intervals after injecting the pelvis with opaque solution have made this muscular movement evident. A pelvis completely filled with thorium or sodium bromide solution will empty itself completely in from 6 to 7 minutes. Overdistention of the pelvis to the point of producing pain is associated with or followed by increased peristalsis of the pelvis and the ureter. It is also recognized by urologists that in the larger hydrocephrotic pelvises overdistention is either painless or produces only a dull ache and is not accompanied by cramp-like pains as in the normal kidney. Seldom are peristalses seen in these pelvises. The degree of relaxation and fibrosis of the pelvis and loss of contractility is of course

the reverse for it.

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view taken by Gardner (F. E. Gardner 2) and exclude the large renal dilatations in which destruction of the kidney has already taken place. These complicate the picture because they are end-results in which the etiological factor has already done its work and is often not easily recognizable. "Let us put aside all cases in which the urinary distention though localized to the upper urinary tract is only an epi-phenomenon in the evolution of an altogether different disease. This, of course, excludes hydronephrosis due to pelvic tumors such as carcinoma of the uterus, prostate, vagina, and rectum fibroid growths, proclivities, ovarian cysts tuberculosis, adenitis and bladder and urethral obstructions. I also wish to exclude those large end result renal dilatations in which it is difficult to state the factors which have operated to produce the dilatation and renal destruction. It is usually impossible from the history or pathology

to unravel the factors which have operated to produce these conditions. They are conditions already beyond hope of remedy. "Any large easily felt hydronephrosis is the evidence of failure any large easily felt pyelonephrosis is the evidence of culpable neglect—both might have been avoided (E. H. Fenwick, 3). After this limitation of the subject I shall now proceed to discuss the four classes of stasis previously mentioned as existing between the normal kidney and the large hydronephrosis.

ACUTE STASIS

Acute stasis is, I believe almost entirely emergency. It occurs most commonly with stone but is seen in accidental ligation of ureters, plugging of the ureter and pelvis by blood clot, and some degree of acute stasis has been shown to exist during acute attacks of pyelonephrosis, due to swelling of the ureter.

pelvic
stasis

done easily and usually by a simple incision pyelonephritis. In most instances the cause of acute stasis is easily and early removed. Older experimental work by Cohnheim and Albarran showed that obstructing the ureter produces sudden rise in pelvic pressure in the kidney which often reaches 73 millimeters in an hour. Sudden complete obstruction, however paralyzes the secreting power of the kidney which is reasonably soon destroyed before time has elapsed sufficient to allow dilatation of the pelvis. When these kidneys are cut down upon, a small tense pelvis is found with almost stony hardness of the kidney and a tense dilated ureter of somewhere between twice and three times the normal size extending down to the point of obstruction. When pyelotomy is done, even though 4 or 3 days have elapsed since the obstruction intervened there is a violent gush of urine and almost immediately the kidney takes up its function of secreting. The polyuria which follows relief of obstruction immediately sets in continues for 24 to 48 hours, after which the urine becomes more concentrated and the flow more nearly normal. I have not seen acute complete

obstruction for a period exceeding 4½ days, but have frequently seen cases from 2 to 3 days after complete obstruction. These latter cases were due to stone. In all except one instance in which, following an injury the kidney and ureter became distended with blood clot, completely stopping secretion. This was of 3 days duration. In one instance I have seen both ureters tied into the stump of the uterus at hysterectomy and completely obstructed so that no urine what

In this instance both pelvis returned to normal capacity. The same was true of the case of hemorrhage into the pelvis and ureter after I did pyelotomy for drainage. In the cases of stone the pelvis were all small yet it is impossible to state in stone cases whether dilatation may not have been produced by the presence of the stone in the pelvis before the acute obstruction took place. Bradford found in animal experimentation that after complete obstruction of the ureter the kidney would return to its normal form if obstruction was removed after from 10 to 40 days. It is my belief that acute obstruction even though complete when encountered clinically is not serious in its after effects and we may expect the kidney to return entirely to its normal condition when the obstruction is removed.

SUBACUTE STASIS

By subacute stasis I refer to those cases of partial obstruction with back pressure and overdistention of the kidney which is of weeks or months duration.

class of case
sure kidney

Rayer in 18... between ordinary pyelitis and the pyelitis of pregnancy it has been recognized that there is hydronephrosis developed with or without pyelonephritis symptoms during the period of gestation. Stasis of this type I have frequently found in the absence of pyelitis, although usually not to so marked a degree as in the presence of infection. This subacute type of obstruction is however easiest

studied in pregnant women because of the known duration of the obstruction, which of necessity cannot exceed 9 months and the complete removal of the obstruction suddenly at the termination of pregnancy. It is not uncommon to find pelvic dilatation of from 30 to 450 cubic centimeters in this type of case often in patients whose symptoms have persisted only during the last months of pregnancy. Caulk calls attention to the readiness with which some of these cases are improved by cystoscopic treatment (Caulk 4). However he has produced no evidence to show what was the end result to the kidney at the termination of pregnancy.

Brausch in discussion denied the existence of large hydronephroses occurring during pregnancy. This last statement I believe to be erroneous because my experience with these cases (which will be published later) has shown the frequent occurrence of dilatation ranging from 30 to 450 cubic centimeters. They are usually in excess of 200 cubic centimeters. In this connection it is important to recall Perinaus three grades of renal retention. These are dependent on the amount of distention and the damage to the elastic tissue in the walls of the pelvis and ureter.

1. Retention of small quantities of urine. This urine is under pressure from the elasticity of the pelvic wall, the tissue of the pelvic walls are under tension but have not lost their tone.

2. More pronounced dilatation fibrous tissue is weakened but has not completely

is greatly impaired

This classification, of course, does not apply except in part to the subacute stasis under discussion. It does not apply because even though the overdistention of the pelvis is extreme it has not existed long enough to produce flattening and thinning of the cortex but approximates a purely pelvic change. It does apply however in that the retention of small quantities of urine seems not quickly to influence the pelvis and that greater

dilatation is possible without complete loss of the elasticity of the pelvis and third that in overdistention some degree of permanent pelvic damage seems to be constant. I have evidence to show that in these pregnant women in whom stases of 200 to 300 cubic centimeters has decreased to 15 cubic centimeters at the termination of pregnancy instead of remaining at the latter degree of dilatation the pelvis may simply by the process of the disease undergo further dilatation in succeeding years without the intervention of subsequent pregnancies. In other words small degrees of permanent damage in the presence of infection may progress to ward pyonephrosis.

she had incontinence for 3 months and some slight degree of bladder irritability. The incontinence was worse on walking, coughing, or sneezing. Catheter urine examined once since birth of last baby 7 months after delivery and found to contain much pus.

At certain times particularly when tired, she

These observations are corroborated by A. H.

Cystoscopy showed slight redness of the bladder mucosa. This was not marked. There was a dull edematous-looking trigone.

Both urines were cloudy and contained a small amount of clumped pus and a few bacilli which in culture proved to be bacillus coli. Functional test (phthalein) showed a decreased output from the right. Right kidney 20 per cent, left 30 per cent. Both pelvis were found under 12 cubic centimeter capacity.

This examination was made in October, 1920. The patient remained entirely comfortable on 20 grains of betal a day until January 5, 1921, when she began to have increased discomfort and more marked pyuria. These symptoms have continued since.

Pyelograms taken in November 1920, show the shadows of the expected pelvis normal in size and shape. The calyces small and somewhat

showed the renal pelvis to have increased in capacity the right to 20 cubic centimeters, and the left to 25 cubic centimeters.

It is to be noted that the right kidney shows ptosis, the left none yet the left is the greater dilatation. There is no other apparent reason for the change in the size of the infected pelvis than the pyelitis and the

the data of a case of pyelitis of pregnancy in which some idea of the date and degree of return to normal has been determined

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pregnancy. The attack was ushered in by fever

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sonably short space of time

Another type of subacute obstruction perhaps equally frequent if not more so than the pyelitis of pregnancy is the slowly progressing and partially obstructing ureteral stone. In those instances in which I have been able to pass a catheter by a stone which was known to have been present in the ureter for several months, I have been able to determine ureteral and pelvic dilatation which exceeded by several times the capacity of that same kidney after the stone had been removed. Even small stones which are not sufficiently large completely to obstruct the ureter and are known to be rapidly passing down, the passage of a catheter into the pelvis of the kidney shows a fair degree of stasis even in the intervals between attacks. Undoubtedly obstruction here is not complete yet the swelling of the mucosa of the ureter together with the stone definitely embarrasses the drainage on that side. Where this condition exists for many months

its outlines were obscured to some extent by 7 months uterine tumor. The left kidney was indistinctly felt and was considerably smaller. Examination made immediately before the first cystoscopy showed that the cervix was beginning to dilate. Right ureter orifice could be seen but not catheterized. The left ureter was catheterized and was found distended with 250 cubic centimeters of infected urine. Following miscarriage the temperature dropped to normal and remained so for 6 days. The urine continued pale but contained considerable pus. At the end of 6 days, patient was again cystoscoped on account of rising temperature and 100 cubic centimeters of very thick greenish-yellow pus withdrawn. Under ordinary circumstances this condition would certainly have been

above that capacity pain was produced. Several determinations showed 30 cubic centimeters to represent the capacity of the left kidney which

but a patient was again examined (about 2 months

kidneys were giving no pain

Similar cases, yet not quite so striking since pyonephrosis did not develop after delivery have shown that the pelvis returned to some where near normal capacity only to have repeated attacks of pyelonephritis develop and subsequent cystoscopic examination demonstrate gradually increasing pelvic capacities. Whether this increase is due to relaxation of the pelvic walls by infection or whether the dilatation is the result of in-

the time element required in these cases to produce permanent damage and to see that these stones are removed within a safe interval. I suspect that time sufficient to produce damage in one kidney may fail to produce it in another. No doubt also subacute stasis in the kidney is frequently encountered in those cases of prostatic obstruction which are of rather sudden onset and of relatively short duration. However the point which I wish to emphasize is that by recognizing subacute stasis as an entity the kidney may by early intervention, be spared even small degrees of damage. I wish to present

creased residual during the attacks of pyelonephritis cannot be determined. That these pelvises are capable of progressing toward pyonephrosis seems to me to be definitely indicated. Subsequent investigation of this

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patients with pyelitis or pyelonephritis. The bearing of these observations on other types of subacute stasis is apparent.

INTERMITTENT STASIS

Intermittent stasis is in part the question of the floating kidney. Keen considers the movable kidney next to pelvic tumor the chief cause of renal dilatation. The literature of ptosis and particularly of renal ptosis is voluminous. It is chiefly the literature of the past decade which saw the development of fixation and the change in sentiment

a new standpoint much valuable literature on the subject.

There are other conditions besides renal mobility which may give rise to temporary renal obstruction of an intermittent nature. Supernumerary vessels should I believe, be classed as one of these. Renal mobility is probably intimately associated with aberrant arteries in all cases in which pelvic stasis results. For this reason the two conditions must be considered together.

The frequency with which renal mobility is encountered both as regards age and sex is fairly well established. Kuester in a survey of normal individuals found renal mobility in 1 to 207 men; 1 in 22 women. Hahn in 100 women found renal mobility in 5.5 per

15 times as frequently as the left. Landeau found both kidneys involved in 5 per cent of all cases in which there was renal mobility. Skotchewski found floating kidneys in 2.2 per cent of all individuals examined. Lanceaux found floating kidney in a proportion

terted clinically in three classes of cases: (1) without symptoms, (2) without symptoms directly referable to the kidney, (3) with symptoms referable to the kidney" (Keyes). Keyes' statement is distinctly a statement of the facts, particularly if we conceive the first group to be disproportionately large. In other words the great majority of palpable kidneys are functioning normally in spite of some degree of mobility, yet the preponder

compared with the male and in the adult as compared with the child, points to some degree of significance in these anatomical differences. It also indicated that renal damage is a progressive condition, i.e. has small beginnings.

The time-honored classification of movable kidneys into congenital and acquired mobility must be remembered. It is probable that we must revise our view regarding the numbers in the first group. Morris' statement that "a floating kidney with a mesonephros is, of course, always congenital" is a fact. Such cases are rare. Their very existence has been denied by Alberran. Gardner has pointed out that congenital defects in the development of the ureter may play a rôle in these low movable kidneys in the production of stasis (Gardner 5). He adopts Pasteau's classification of renal mobility which is:

1. True ectopic kidney in which the renal vessels take origin low down on the aorta or from the common iliac.

2. The origin of the vessels is slightly below the normal position; the kidney pedicle is long; the kidney can be replaced into its fossa.

3. The origin of the vessels is normal, but the pedicle is long; the kidney is freely movable but remains vertical.

4. The origin of the vessels is normal; the pedicle is short; the kidney on descending assumes an oblique position. This last is the typical acquired mobility.

Certain congenital ureteral conditions may

play an important part in the development of stasis not only in the normal kidney but particularly in the movable kidney. These congenital factors are (1) developmental rotation of the kidney (2) foetal valvulae. These factors are more common in the upper segment of the ureter but are also occasionally found near the bladder. Wolfner in 100 newborns found more less transverse folds in the mucosa near the pelvo-ureteral junction. In ten instances the outlet of the pelvis into the ureter was very much narrowed scarcely admitting a filiform. In the foetus these are constant findings (Engliah). Not only are there spiral folds in the mucous membrane of the upper portions of the ureter but also striations on the outer coatings which are in evidence of the rotation of the kidney during development. After birth these normally disappear due to the eccentric pressure of the urine and growth of the ureter. They disappear from the lower segments upward and are most apt to persist in the upper ureter near the pelvo-ureteral junction. Arrest of development may mean the persistence of these abnormalities into adult life. In the normal kidney they may be insufficient to cause stasis, but in movable kidneys they are operative.

the brim of the pelvis upward toward the kidney. About 3 centimeters from the pelvis the ureter leaves its close relation to the peritoneum and passes through the perinephric fat to join the pelvis. This is known as the mobile portion of the ureter. Not only is it the point at which foetal abnormalities are most apt to exist but it is the point at which kinking of the ureter in movable kidney is apt to take place. Kinking implies deviation of the ureter at the point of kinking. Kinking without ureteral abnormalities may and clinically seems to be unattended by evidence of stasis in many instances. In still other instances unusual thickness of the bands of fibrous tissue which normally bind the ureter loosely to the peritoneum at this point have been found to be sufficient cause for hooking up the ureter in this movable portion

of its course. Frequently anomalies in caliber are found in the ureter at this place. I have usually found that the caliber of the ureter was not decreased and the apparent narrowness was merely angulation. Angulation of the ureter in this area has been much more frequently due to fibrous bands than to any other cause.

Supernumerary vessels are encountered in some instances without the appearance of having produced any obstruction to the outflow of pelvic urine. Boogard in 1857 observed the first case of obstruction from aberrant vessels. Engliah states that a vessel in front of the ureter cannot cause hydronephrosis. Kuester, Israel, Bary Duval and Gregoire concur. They even reject the rôle of vessels in producing renal retention. Roberts, Morris and Decease take the other extreme and contend that all hydronephroses which develop in kidneys showing abnormal blood distribution are due to vessel defects. Fenwick claims that 16 per cent of primary pelvic dilatation is due to aberrant vessels.

ureter is not able to produce obstruction in a movable kidney. Veins seem to be incompetent to obstruct the ureter. The frequency of occurrence and the nature of arterial subdivision is well demonstrated by Eisenbraun (6).

Since Landau's papers and the work of Terrier and Baudouin it is generally believed that movable kidneys cause a type of hydronephrosis or stasis called intermittent. As a rule the movable kidney with well-marked symptoms of intermittency is not associated with large pelvic dilatation. The reason for this seems to me apparent first of all because the stasis is not persistent throughout the 24 hours period. Stasis is produced when the patient is in the upright position and relieved in the resting prone position. It has been estimated by animal experimentation

does not militate against these kidneys being painful, representing actual temporary stasis

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of the intermittency of that obstruction I plan to report on these cases only after sufficient time has elapsed to allow of determination of the permanency of results. The oldest of my cases are of but 3 years duration. All have been relieved. Even though the relief may not be permanent, which I doubt the operation has been justified. The maintaining of a comfortable properly functioning kidney for that length of time is worth the price. Blind standard operations have no place in the treatment of these kidneys. Suspensions must be done with a view to remedying the defect present in that particular kidney as shown by pyelogram.

I have some evidence to show on cases which have been observed over a period of years that slow dilatation takes place. The longest one of these instances has been that of a man with bilateral small renal stasis seen in the hospital in 1913 and followed until the present time. His pelvic capacity on both sides has increased three times what it was at the first observation in a period of 9 years.

The part which ureteritis and peri ureteritis play in producing small degrees of temporary partial obstruction must be recognized but as yet sufficient data have not been accumulated to allow definite statements as to the importance of this condition.

It should also be mentioned that there are those who believe that the bouts of passing urine in large quantity such as takes place in intermittency have in themselves the effect of producing increased pelvic capacity (Fenwick). The thinned ureters, pelvis and bladders and increased capacity of these organs in diabetes insipidus is cited.

My purpose in calling attention in such detail to intermittent stasis is that I believe it to be a large group of cases the nature of which is in great measure misunderstood and that the end results both as regards persistent infection and pelvic dilatation are not well known. This error is chiefly due to failure to recognize the slow rate at which change takes place and the rare circumstance that allows one observer to follow a case from its inception to the final outcome either in destruction of the kidney

or in death of the patient. Most of the attacks of pain are not severe enough nor is the succeeding polyuria sufficient in quantity to attract attention. Yet careful observation has led me to believe that the painful kidney is a "Dietl's crisis" in miniature and the same factors operate even though the symptoms are moderate.

Fenwick has called attention to the fact that serious degrees of pelvic dilatation can take place in the absence of any symptoms in the patient's history which can be interpreted as representing a stage of painful dilatation. He believes that these kidneys are of decreased sensation. Only on this assumption can the facts of clinical experience be correlated. There is no other way in

presence of pyuria

RELATIVE OBSTRUCTION

By this term I wish to refer to the group of cases in which there is no apparent obstruction to the outflow of urine from the renal pelvis, ureter or bladder or if stricture exists the dilatation continues below the point of obstruction as well as exists above it. This type of pelvis and ureter are occasionally found in bilateral pyelograms on the side opposite to definite pathology. The condition has apparently existed without symptoms. In some instances the kidney is low. In other instances it is up in normal position and does not descend in such a way as to obstruct its ureter. The dilatation often continues through the bladder wall involving the sub mucous portion of the ureter. The nature of this obstruction and the cause of it do not seem apparent. These kidneys usually function well. The cortex is often not at all thinned in such a way as to indicate any serious degree of back pressure. There are few if any symptoms connected with the condition if infection is absent. When infected they are extremely troublesome and do not yield readily to any kind of treatment. The ureterovesical valve is often incompetent and injection of fluid into bladder causes back wash into kidney pelvis.

and showing progressive even if extremely slow dilatation. I have been able to demonstrate in one instance a change in pelvic capacity from 7 cubic centimeters to 14 cubic centimeters within a year's time. During this time symptoms had been present and pyelogram showed definitely the difference in size of the pelvis at the two examinations.

I have also remarked that frequent cystoscopic examinations of the same patient will show evidence of considerable overdistention of the pelvis at the time of renal distress. In one individual the capacity of the right pelvis on two examinations was not in excess of 7 cubic centimeters. On two other occasions when the patient came to my office late in the afternoon after a day of activity in shopping the same pelvis was found to contain 15 cubic centimeters of fluid at the time a plugged catheter was inserted into it. After this quantity of urine had been aspirated off through a syringe distention of the pelvis to 7 cubic centimeters again produced pain. It was not possible to distend the pelvis to 15 cubic centimeters. In this instance definite overdistention of the pelvis on two occasions when symptoms were present was established. Symptoms of intermittency (*Dietl's crisis*) was the chief complaint. The parallelism between urinary intermittency and renal mobility is not the less real because of certain discrepancies. It is not uncommon to find a patient who although she has frequently passed urine during an attack of renal pain passes from 1 to 2 quarts of urine in the succeeding 2 hours after the pain ceases. A close parallelism would demand that this patient have an extremely large hydronephrosis which suddenly empties itself with relief of the pain. Such is not the case. Patients with marked symptoms of intermittency have usually had small pelvises.

A large hydronephrosis with overdistended walls has lost its muscular elasticity to such an extent that it is unable to empty itself even when the obstruction is removed. This is apparent to those surgeons who have attempted to cure large hydronephroses by reimplanting the ureter or doing plastic operations on the pelvo-ureteral outlet. Such

kidneys do not return to normal size. In most instances where symptoms of intermittency occur pyelogram will demonstrate that the kidney which has given pain and where a polyuria follows cessation of the attack, is not greatly if at all, dilated. I have recently had a patient whom I observed during a typical "*Dietl's crisis*" of an hour's duration accompanied by frequent attempts at urination during the attack. Cessation of pain was followed by polyuria. The patient passed about 2 quarts of urine in the succeeding 2 hours. Pyelogram showed a slightly bulging kidney with a linked ureter. Cystoscopic determination of the pelvic capacity showed that the dilatation was not in excess of 10 cubic centimeters. This was a left-sided congenitally movable kidney. "*Dietl's crises*" are more apt to occur in the small not overdistended pelvis in which the tone of the musculature and pelvic contractility is not lost. Such kidneys are still sensitive to distention. A parallelism is that of the painful spreading inguinal ring during the development of a hernia. After the dilatation of the ring has been accomplished the pain becomes less severe. If it does not cease altogether. On the basis of the above argument I have done suspensions of the kidney and plastic operation for the relief of renal pain and for the cure of persistent pyelitis where small degrees of stasis existed. The operations have given uniformly satisfactory results. I believe these small degrees of renal stasis in which a small pelvis is distended to its capacity are just as definite instances of renal stasis as

be unsound surgery to do operative interference on a kidney either because its position is low or because the course of its ureter is not straight. I believe it to be absolutely essential to demonstrate the existence of stasis by means of the cystoscope and the ureteral catheter. This can only be done after cystoscopic study with several observations. I recognize that the rate of change in these early obstructions is slow because

THE QUESTION OF RECURRENT RENAL CALCULI¹

BY J. DELLINGER BARNEY M.D. F.A.C.S. BOSTON

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THERE is a disappointing scarcity of literature upon the important and interesting subject of recurrent renal calculi. In their excellent paper on this topic published in 1915, Cabot and Crabtree² remarked that they could find no useful statistics bearing upon this important question. Since this date the literature contains but one article that by Braasch published in 1917.³ It would therefore, appear that the subject is unpopular either because of the long and patient labor which the accumulation of data involves, or because of the disappointing results which the investigation has revealed. Be that as it may certain personal experiences led me to take up the question from a new point of view and for the past year I have

use either to no subjective symptoms what ever or to pain in such an unusual location that the diagnosis is not made without some delay. Furthermore, it is equally well known that in an appreciable number of patients the urine is persistently negative. For these reasons it is obvious that in order to say whether a patient has a renal calculus, he must be personally examined and have a careful roentgenographic examination of the urinary tract. The patient's statement by word or letter and often even that of his doctor is therefore not sufficient for the desired purposes. With this idea in mind Cabot and Crabtree in the article already referred to based their conclusions only upon such cases as they were able to examine personally. There were 87 such cases, of which 63 had been operated upon for stone in the kidney 21 for stone in the ureter. Thirty cases treated by nephrotomy showed a so-called "recurrence" of 56 per cent, while in 33 cases having a pyelotomy the figure was 51 per cent. Unfortunately we do not know

how many of these patients had had an X-ray during convalescence from or within a few weeks after operation. In the absence of this information it is impossible to say whether the stones found in a kidney a year or more after operation are actual recurrences or what may be called left overs from the operative procedure. My observations of the past year convince me that many of the cases would fall into the latter class.

Certain more recent investigations of my own show results which are equally unsatisfactory. Of 70 cases of nephrotomy which includes all the operations of this type performed at the Massachusetts General Hospital from 1897 to date the results are known in 35 either through personal communication, through the local physician or by actual examination of the patient. Out of 16 who had a roentgenographic examination 14 showed the presence of stone in one or both sides giving a percentage of 40 of those whose definite results were known. But here again the figures would be undoubtedly greater if all cases had been checked up by this procedure and also many were unquestionably instances of stones left over after operation.

Of the cases of stone admitted to the

Furthermore our records show that 10 patients had either passed a stone after pyelotomy or were found to have one in the kidney at the time of examination.

The situation is, therefore serious enough to warrant careful investigation, in the belief that a more encouraging report may eventually be given. Such an investigation should not, however be left to one man or to one clinic, but rather might advantageously be undertaken simultaneously by various observers and the collected data published.

Braasch's paper in 1917 gives a more promising view of the possibilities offered by

¹From Genito-Urinary, 1915, Vol. 2, 213.

²From Genito-Urinary, 1917, Vol. 2, 213.

such bleeding the removal of stones of small size may be wellnigh impossible. I have tried to overcome this difficulty by the simple

serve well in most cases and boracic acid solution or sterile water can be forced through this with considerable pressure by the use of a hand syringe. In certain instances I have thus removed calculi which I was unable to find in any other way. In other cases a subsequent roentgenogram showed that this method is not wholly reliable. An experience with two or three cases of small multiple calculi scattered around in various portions of the kidney has convinced me that the successful handling of such a situation will tax all of one's skill and ingenuity and will often lead one to consider the advisability of nephrotomy or even of nephrectomy. At the same time, when one is handling a normal looking kidney the urine from and the function of which is essentially normal, neither of these measures seems to be justifiable.

Another situation with which the surgeon may be confronted is that presented by the inaccessibility of the kidney, which in turn may be due to the extreme obesity of the patient to the large size of the organ to an undue shortness of the pedicle making delivery of the organ impossible to the dense adhesions resulting from previous operation, or to a combination of these factors. To these difficulties I might add that which is encountered in a horseshoe kidney where owing to numerous large aberrant vessels access to the interior of the organ is difficult or unsatisfactory. Under such circumstances I believe it may sometimes be quite impossible to remove a stone or that in attempting to do so one may jeopardize the kidney or even the patient. Here again the question of deliberately taking out the kidney must be well considered as if one fails to remove the stone, subsequent operation may be required. If the case is difficult to handle on the first occasion one can be very certain that it will present no easier a problem later on.

In a few instances where the stone has been too large to extract safely through a

pyelotomy incision and where nephrotomy seemed unwise and nephrectomy unnecessary I have yielded to the temptation to crush the stone *in situ* and remove it piecemeal. Entire success attended my efforts in one case. In two others the stone was easily crushed with a heavy clamp and apparently all the fragments removed. But as I think over these cases in retrospect I believe that the few small fragments which were left behind became so covered with fibrin owing to the free bleeding that they could not be detected with a metal instrument.

It has been already pointed out that the attention to and the performance of certain details may turn failure into success. Even

though the stone may not be large, it may be in a position to cause all the trouble mentioned. In addition to these measures there are two others which are sometimes of value. One is the old fashioned but still useful method of needling the kidney. While this may be done with the eye-end of a large straight needle I find that the rounded end of a small flexible silver or copper probe is far superior. Its bluntness is no bar to its insertion into the kidney cortex and for this very reason it is safer than a more pointed instrument. Furthermore, it can be bent so as to go in any direction. Having a general idea of the location of the stone one can insert the probe directly into the suspected calyx and finally elicit that welcome grating sensation which he has previously failed to get or with an instrument in the pelvis grating

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the tone of its extraction by way of the cortex—in other words, by partial nephrectomy. I cannot emphasize too strongly the value of this method of approach to a stone under certain conditions. The pyelogram may or may not

an indication may often be discovered with the probe the insertion of which will show that its walls are very thin and may be widely

surgery for the relief of renal calculus. Of 88 patients re-examined, including roentgenography only 13 or 14.7 per cent, showed recurrence. Here again no statement is forth coming as to whether a roentgenogram during convalescence or shortly after was made in these cases but the results are sufficiently brilliant in any event.

Upon inquiry it seems to be clear that the custom of having postoperative roentgenographic examination of the urinary tract is not by any means a routine procedure. Such an examination is now the rule in our clinic and it is hoped that the statistics will eventually be not only more valuable but more encouraging.

Upon investigating what has already been done in this direction I found records of only 20 postoperative roentgenograms of the urinary tract, although I am aware that more than this number have been taken but not recorded. In 9 or 45 per cent the roentgenogram showed stone still remaining in the kidney. In the absence of these postoperative roentgenograms which clearly demonstrate

date

On first thought it is strange that the removal of stones from so comparatively small a cavity as the renal pelvis should be so uncertain a matter. It is even more remarkable that nephrotomy, an operation which fully exposes the interior of the kidney to the eye and to the finger, should yield equally unsatisfactory results. But more careful consideration will show that the renal pelvis, although small, is actually a

this reason one cannot be too careful about the pre-operative diagnostic steps. It is not sufficient to know that a stone is in the kidney; one must determine exactly which calyx it is in the relation of this calyx to the pelvis, and the character and position of its orifice. While careful routine pyelograms may suffice a repetition of this procedure with the patient lying on the face instead of on the back or even on the side may prove to be a valuable aid. Whether injection of oxygen into the perirenal tissues or into the renal pelvis will prove to be of value remains to be seen.

While not by any means attempting to offer an excuse for the fact that so many stones are left in the kidney after operation, I believe it is important to realize that the remarks just made about the peculiarities in the shape of the interior of the kidney do not end the matter. There are many other difficulties to contend with.

In the first place it is all too frequently forgotten that while the X-ray may show one fairly large shadow this may cover other smaller shadows lying in front of or behind it. At the operation a stone corresponding in size and shape to the roentgenographic shadow and showing no facets or signs of fracture may be easily extracted. The operator satisfied with this, may then bring the operation to a close without further ado. On the other hand he may conscientiously search for other stones but fail to find them. The causes of failure are numerous. In the first place the manipulation required to extract the first stone, no matter how brief or gentle, and whether instrumental or digital, often produces considerable bleeding from the pelvic mucosa. If the remaining stone or stones be small they may become surrounded with fibrin to such an extent that the usual grating sensation elicited by a metal instrument is lacking and the stone is not detected.

bind the two portions connecting with one another by a long and narrow passage the insertion of a probe into which is often a

such bleeding the removal of stones of small size may be wellnigh impossible. I have tried to overcome this difficulty by the simple process of irrigating the interior of the kidney in an attempt to dislodge both clots and stones. An old fashioned silver catheter will serve well in most cases, and boric acid solution or sterile water can be forced through this with considerable pressure by the use of a hand syringe. In certain instances I have thus removed calculi which I was unable to find in any other way. In other cases a subsequent roentgenogram showed that this method is not wholly reliable. An experience with two or three cases of small multiple calculi scattered around in various portions of the kidney has convinced me that the successful handling of such a situation will tax all of one's skill and ingenuity and will often lead one to consider the advisability of nephrotomy or even of nephrectomy. At the same time, when one is handling a normal looking kidney, the urine from and the function of which is essentially normal, neither of these measures seems to be justifiable.

Another situation with which the surgeon may be confronted is that presented by the inaccessibility of the kidney which in turn may be due to the extreme obesity of the patient, to the large size of the organ, to an undue shortness of the pedicle making delivery of the organ impossible, to the dense adhesions resulting from previous operation, or to a combination of these factors. To these difficulties I might add that which is encountered in a horseshoe kidney where, owing to numerous large aberrant vessels, access to the interior of the organ is difficult or unsatisfactory. And in these cases

pyelotomy incision and where nephrotomy seemed unwise and nephrectomy unnecessary. I have yielded to the temptation to crush the stone *in situ* and remove it piecemeal. Entire success attended my efforts in one case. In two others the stone was easily crushed with a heavy clamp and apparently all the fragments removed. But as I think over these cases in retrospect I believe that the few small fragments which were left behind became so covered with fibrin owing to the free bleeding that they could not be detected with a metal instrument.

It has been already pointed out that the attention to and the performance of certain details may turn failure into success. Even more taking of the gation of the renal pelvis have all been men- tioned. In addition to these measures there

value
useful
While

this may be done with the eye-end of a large straight needle. I find that the rounded end of a small flexible silver or copper probe is far superior. Its bluntness is no bar to its insertion into the kidney cortex, and for this very reason it is safer than a more pointed instrument. Furthermore it can be bent so as to go in any direction. Having a general idea of the location of the stone one can insert the probe directly into the suspected calyx and finally elicit that welcome grating sensation which he has previously failed to get or with an instrument in the pelvis grating against a stone which cannot be grasped. The localization of another surface of the stone with the probe will sometimes expedite its extraction by way of the cortex—in other words, by partial nephrotomy. I cannot emphasize too strongly the value of this method of approach to a stone under certain conditions. The pyelogram may or may not have demonstrated a dilated calyx, but unless the stone has remained entirely in the pelvis such a thin walled calyx is pretty sure to exist. Its location may often be discovered with the probe, the insertion of which will show that its walls are very thin and may be widely

the patient. Here again the question of deliberately taking out the kidney must be well considered, as if one fails to remove the stone subsequent operation may be required. If the case is difficult to handle on the first occasion one can be very certain that it will present no easier a problem later on.

In a few instances where the stone has been too large to extract safely through a

opened for the extraction of the stone. Small clamps are then inserted into the calyx, using the probe as a guide and the stone grasped without difficulty. I have never found it necessary to suture the rent made in such a calyx, nor have I seen any untoward results either immediate or remote.

Finally I wish to speak of a procedure which, under certain circumstances, may be of indispensable value in the search for stones in difficult cases. I refer to the use of the fluoroscope either by the surgeon himself or by the roentgenologist during operation. This has been used in the Mayo Clinic for a considerable time and with very satisfactory results. In fact, I was recently told by one of the surgeons of St. Mary's Hospital that their reliance upon this means of locating stones was now so great that they could safely feel that every calculus had been removed if and when the roentgenologist reported that no more shadows could be seen in the kidney. Although I feel that this may be a somewhat optimistic view of the possibilities offered by this method of examination it certainly shows that the technique has been brought to a high state of development.

While my experience with the fluoroscope has not been extensive I have found it of

in the kidney will hasten the location and the actual seizure of the stone with a clamp. In a few instances of multiple small calculi, stones which defied my every effort at localization, either because of their position or their coating of fibrin, have been successfully removed. In certain other cases, however, the roentgenologist, after careful search, has reported that no more calculi were to be seen. But subsequent roentgenogram has shown one or two small stones remaining, a fact which demonstrates that even the fluoroscope with a competent observer behind it is not infallible. I believe, however, that the roentgenologist must be especially trained in this particular type of case. It is comparatively easy to see the outline of a large mass of bismuth in the stomach or intestines, but it is a far more delicate matter to detect a faint shadow the size of perhaps a grain of rice in the kidney, and yet this is the very thing we would like to have located with accuracy. Another feature of fluoroscopy which is essential is that the kidney must be delivered entirely out of the wound so that no other tissue intervenes between it and the tube or screen. The frequent impossibility of this is well known, so that one cannot tell until the time comes whether the radiologist can perform his part or not. If the kidney cannot be delivered from its bed, the over-

accustom his eyes to the light by wearing dark glasses some time before his services were required. After delivering the kidney from the wound the X-ray apparatus is brought to a suitable distance from the patient's abdomen a sterile sheet being draped over the tube. The roentgenologist arranges his fluoroscopic screen also draped in a sterile sheet or towel close to the patient's back. Stones of any considerable size may be readily seen. Small calculi may require considerable search. Under the direction of the roentgenologist the surgeon is then able to touch or grasp the stone by means of a metal instrument inserted into the pelvis or into a calyx. Sometimes another instrument or even the surgeon's finger outside of the kidney acting in conjunction with that

for the certain reclamation of every stone which the kidney contains.

From what has gone before we have seen that stones may be left in a kidney from which they were all supposedly removed with disappointing frequency in spite of every means which one may adopt. It is therefore clear that a roentgenogram during convalescence is absolutely essential if one is to know the exact state of affairs before dismissing his patient.
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ogram
been left behind? Should the patient be

the facts and should a second operation be advised? With very few exceptions I believe it is highly desirable and even necessary that the patient should know the exact situation. If he is of average intelligence and if the relationship between himself and the surgeon is all that it should be this information will be accepted in the proper spirit. If the situation is not made clear an attack of renal colic or the spontaneous passage of a stone shortly after the operation may easily lead to an embarrassing situation.

The question whether a second operation should be performed is one which should be looked at from various points of view. In the first place the patient may refuse, in which case the incident is closed at least for the time being. If the patient is a poor risk or for any reason took unkindly to the first operation, one would hesitate to submit him to further risks. If a nephrotomy has been done and convalescence has gone on without the advent of secondary hemorrhage the surgeon would, indeed, be bold to advise the tempting of Providence a second time.

It is the surgeon's duty to

risk and stood the first operation well. If the

won to so advise in several cases, I have performed the second operation 10 days or 3 weeks later. By this time the patient is well over the effects of anesthesia, the possibility of infection is gone, and clots have become pretty well organized. On the other hand adhesions are so delicate as to offer no hindrance to a rapid approach to the kidney and one's only difficulty lies in the increased thickening of the various structures from edema and processes of repair.

My experience has been that the recovery of stones at the second operation is apt to be

easier than was expected and I have had only one case in which a roentgenogram after the second operation showed the presence of stone. This case has been followed carefully and the remaining stone has finally been spontaneously aided meantime by the passage of a ureteral catheter on several occasions.

Before bringing this paper to a close I wish to say a few words on the choice of operation. Those cases which obviously require nephrectomy will not be considered. But since it has been shown that the number of stones subsequently found in a kidney whether they are actual recurrences or left overs from a previous operation, is very high, and when one considers that this is true whether after pyelotomy or nephrotomy the decision as to which operation to employ may be difficult. In a few cases the size and number of the stones or their position may leave one in no doubt that nephrotomy is the only possible procedure. On the other hand when stones are so large or so numerous as to require this operation for their removal it will usually be found that the kidney is dilated beyond hope of recovery, that its urine is badly infected and that its function as shown by the phthalein test is of little consequence. Under these conditions the kidney should be removed for as W. J. Mayo¹ has remarked "One of the most common causes of recurrence of stone has been the attempts to conserve a badly damaged kidney which was of little use functionally and a continuous menace to the future health of the patient."

Any series of nephrotomies will show a high percentage of disasters, fatal or otherwise. Among the 70 nephrotomies performed at the Massachusetts General Hospital from 1897 to date there was an operative mortality of 5.7 per cent comprising 4 cases of which 2 died as the result of secondary nephrectomy for hemorrhage. Eleven of the series (15.7 per cent) had secondary hemorrhage requiring nephrectomy in 3 instances, while in 8 the bleeding ceased either after packing or spontaneously. Last it be thought that our experience is unique I find that Bevan² has

¹Proc. Gynec. & Obst. 1917 229
²Brit. Med. Chicago 1921

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no case to prove it that the reopening of a previously nephrotomized kidney would very materially increase the amount of destruction to the organ which the first operation produced.

On the other hand when the patient is agreeable to the proposition, if he is a good risk and stood the first operation well, if the

spontaneous passage small then I would advise a second operation. Having had occasion to so advise in several cases I have performed the second operation 10 days or 2 weeks later. By this time the patient is well over the effects of anesthesia, the possibility of infection is gone and clots have become pretty well organized. On the other hand adhesions are so delicate as to offer no hindrance to a rapid approach to the kidney and one's only difficulty lies in the increased thickening of the various structures from edema and processes of repair.

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had to do secondary nephrectomies in 8 or 10 cases within one or two weeks after nephrotomy and that W J Mayo (loc cit) discussing 40 nephrotomies says that several had hemorrhages after operation and in four it was necessary to do nephrectomy to save their lives.

The high percentage of recurrences after this operation, the very considerable chance

already should make us stop and consider carefully whether it is advisable.

Turning to pyelotomy we find a brighter picture. In the first place the mortality is almost negligible. In one series of 206 cases at the Mayo Clinic, Brassch (loc. cit.) reports not a single death. In our clinic at the

little disturbance of the renal cortex or of its blood supply results in further damage to the organ. Therefore although the difficulties of removing stones from a kidney through a pyelotomy incision may tax the surgeon's uttermost skill and ingenuity and although it has been seen that in spite of this effort the number of stones subsequently found is high, one should have no hesitation in selecting this as the operation of choice whenever possible.

SUMMARY

I might summarize my remarks as follows:

1. There is an unfortunate paucity of investigation on the matter of recurrent or overlooked renal calculi and it would be desirable to have various observers in different clinics undertake such an investigation.

2. Roentgenographic examination during or very shortly after convalescence is essential for the accuracy of the results in such a piece of work.

3. While the few data which are at hand show that stones are subsequently found in the kidney after operation in a surprising number of instances, it is impossible to say which of these stones are "recurrences" and which are "left over." Actual recurrence is unquestionably very frequent.

4. The complex character of the interior of the kidney, hemorrhage from its mucosa, and the comparative inaccessibility of this organ in many cases contribute to the difficulties in removing all stones.

5. Although various procedures may be resorted to for this purpose, none is infallible. It would appear that the fluoroscope offers the most promising prospects for success.

6. Pre-operative study cannot be too painstaking nor must the possibility of superimposed shadows of calculi be overlooked.

7. A second operation for the removal of remaining stones is advisable in most cases.

combined with partial nephrotomy

PRIMARY TUMORS OF THE URETER¹

By PAUL W. ASCHNER, M.D., New York City

Assistant Attending Surgeon, Assistant in Surgery, Mt. Sinai Hospital

A SURVEY of medical literature reveals 47 cases of primary epithelial tumors of the ureter. Of these only four were squamous-celled carcinomata. In a study by Kretschmer 44 cases of leucoplakia of the urinary tract were compiled. A patient presenting both of these rare conditions came under my observation and care. The history and findings are herewith presented.

Case No. 310343—H. W. male, age 38, was admitted to the surgical service of Dr. Edwin Beer, May 29, 1921.

Three weeks before admission he had an attack of severe stabbing pain in the right flank radiating downward and forward to the groin, accompanied by repeated vomiting, chills, and temperature of 105. The attack gradually subsided in 3 days. The patient thought he passed a stone followed by bloody urination for a few hours. Dull constant pain in the right upper abdomen had persisted since, made worse by bodily motion and ingestion of food. There was marked nocturnal frequency. The only red

cause of recent fever and chills, pyelography was omitted.

Operation. On May 25, 1921, under general anesthesia, the right kidney was exposed through an oblique lumbar incision. It was found twice the normal size, its pelvis tremendously enlarged and dilated. At the ureteropelvic junction an indurated mass about 2.5 centimeters in length was felt and was thought to be an impacted calculus. The kidney was delivered with some difficulty because of adhesions, and the pelvis emptied of its fluid content by an aspirating syringe and needle.

of the cortex. This incision served for a drainage tube later. Fluoroscopy by Dr. Bendick showed all stones had been removed. The ureteropelvic junction

longitudinal section for microscopic examination. The longitudinal incision in the ureter was now closed in the opposite direction, and a large ureter catheter passed well down the ureter and led out through the nephrotomy wound by way of the pelvis. The pelvis was then closed with interrupted sutures, and reinforced by fatty tissue. A small tube was introduced through the nephrotomy wound. Rubber dam was placed in front and behind the kidney and the greater part of the wound was closed in layers.

The stones consisted of calcium carbonate and oxalate, and ammonio-magnesium phosphate. To our great surprise the tissue removed from the ureter structure proved to be squamous-celled carcinoma. It was, therefore, indicated to remove the ureter and kidney. If a frozen section had been made the complete operation could have been done.

extraperitoneally and divided close to the bladder as the first step of the procedure. The division and liberation of the lower ureter before doing the nephrectomy had these advantages: (1) It minimized the risk of sending tumor cells down through

smallest appeared in the periphery the others in the pelvis. Findings of

urine. The left side yielded a clearer, more concentrated urine with pale indigo excretion in 25 minutes. It contained some leucocytes, 5,000 per cent urea, culture negative.

The phenolphthalein test showed 30 per cent excretion in 2 hours.

Blood chemistry showed urea nitrogen 26.6, incoagulable nitrogen 74.7, urea acid 4.1, creatinin 2.4.

Blood Wassermann negative.

In view of the poor functional power of the left kidney as shown by the indigocarmine test, and the presence of some pus in the urine from the left kidney, a conservative operation was planned. Be-

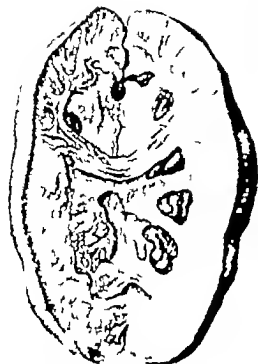


Fig. 1. Longitudinal section of renal pelvis.

the ureter during the manipulations necessary for the freeing of the kidney and upper ureter (2) it eliminated one shift in position of the patient necessitated by the technique hitherto described (3) it minimized the chances of infecting the anterior wound after working in the infected field produced by the previous operation (the pelvis

space.

The patient was then turned on his side. The wound of the former operation was reopened and found to be extensively infected with much pus

with a *Staphylococcus* tampon.

Gross pathology. Specimen consists of the right

wound, 2 centimeters in length the tract leading into the kidney pelvis and showing necrosis and inflammation in the adjoining parenchyma. The

showing a somewhat elevated red, granular surface. The pelvis is widely open (previous suture line re-opened during course of second operation). On splitting its anterior aspect upward, continuous

vas and calyces, however contain grayish white, somewhat gritty flakes, free or loosely adherent to the mucosa. The latter is almost completely covered by dull, grayish white, slightly elevated, irregular membrane which can readily be peeled off in flakes. At the entrance to the upper pelvis and on the septum between the two is a more protruding, finely wrinkled, parchment-like area

preserved and shows no evidence of marked in-

cells deep with flattened polygonal cells, filled with deeply staining granules of keratinohyaline substance (stratum granulosum). Next is a layer four to

trating

1 Section through pelvis (or ureter) near the neoplasm (Fig. 4). The sharply defined layers de-

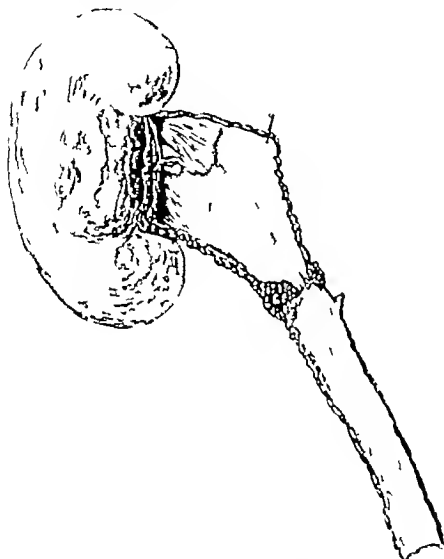


Fig. Leucoplakia of renal pelvis, carcinoma of ureter

isolated. The subepithelial tissues show more inflammatory infiltration.

Sections through the neoplasms (Figs 5 and 6) The epithelium has taken on a disordered napped form. The cells are

Section through the

cells are of the cuboidal, transitional type. The more superficial ones appear swollen. The subepithelial stroma shows

(Fig 7) y outline, is not to

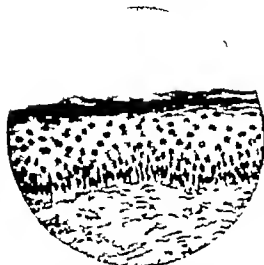


Fig. 3. Leucoplakia of renal pelvis, section showing well defined layers of epidermis.

Subsequent course. In view of these findings it was reasonable to suppose that the pus in the opposite kidney was due to a leucoplakic condition. After operation flaps in the ureter were examined and proved to consist of desquamated squamous epithelium.

The abdominal wound healed with little discharge of pus from the drainage tract. The lumbar wound was treated with Dakin's solution and healed by granulation. The patient was discharged on July

continued,
well-defined,
the trigone,
ectoderm re-

moved from these areas showed typical leucoplakic changes.

In November 1931, the patient was presented before the Section of Urology New York Academy of Medicine. He was suffering considerably from

It is interesting to speculate upon the sequence of pathological events in this case. It seems probable that the leucoplakia of the urinary tract preceded the formation of



Fig. 4. Leucoplakia in vicinity of the ureters.

calculi. These were of the soft variety often seen in infected kidneys with abscess, and had none of the branching or coral form seen in primary pelvic stones. The passage of a stone or the ulceration due to impaction added to the irritation of infection at the uretero-

develop into all epithelial cells in the vicinity of epidermis to develop malignancy when out

horny cancer

It is not my purpose to enter into a detailed discussion of the etiology and nature of leucoplakia. The most authoritative articles on the subject are referred to in the bibliography. Marchand first believed it was a replacement of the normal epithelium by a process of invasion from the true skin. Albarran explained it on the basis of embryonal heterotopia. Hallé regarded it as a true metaplasia, and it seems to me that the weight of available evidence is in favor of this view. Ziegler noted its almost constant



Fig. 5. Squamous-cell carcinoma.

association with chronic inflammation of tuberculous or non-tuberculous origin although Leber believed congenitally and Klatschenko that in rare instances all evidence was lacking. Most authors including Klatschenko, Wendel, Wechsungen, Kaufmann, felt that its presence preceded development of squamous-cell carcinoma. Healy was strongly inclined to this view.

leucoplakia was present in only three in 51 cases of bladder

ported cases of primary ureter tumors

the case numbers in the tables correspond to the bibliographic numbers

| | |
|-----------------------------------|------|
| I Papillomata | 21 |
| II Papillary carcinomata | 12 |
| III Non-papillary carcinomata | 24 |
| A Squamous cell | (4) |
| B Carcinoma solidum seu medullare | (20) |

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- 9 REUNIONATION INTRACAMPHAL INJECTIONS By Donald W. Crile, B.S., M.D. Chicago
- 10 FORWARD DISLOCATION OF BOTH BONES OF THE FOREARM AT THE ELBOW. REVIEW OF THE LITERATURE, WITH REPORT OF CASE By Isidore Cohn, M.D. Rochester, N.Y.
- 11 SUBATROPHICAL DISLOCATION OF THE FOOT By Bernard H. Moore, M.D. Chicago

DEPARTMENT OF TECHNIQUE

- 12 TREATMENT OF FRACTURES OF THE FOREARM WITH GREAT DISLOCATION TREATED WITH THE TRACTION By Dr. R. I. Keppner, Rochester, N.Y.

By Dr. R. I. Keppner, Rochester, N.Y.

the kidney tumor was removed by another surgeon without stopping the hematuria and cystoscopy showed obstruction and bleeding at 23 centimeters. A ureterogram demonstrated that the ureter



Fig. 3. Leucoplakia of renal pelvis, section showing well defined layers of epidermis.

Subsequent course. In view of these findings it was reasonable to assume

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The abdominal wound healed with little discharge of pus from the drainage tract. The lumbar wound was treated with Dakin's solution and healed by granulation. The patient was discharged on July 12, about a month after his admission.

Vesical symptoms and cloudy urine continued however. Cystoscopy showed two well-defined, glistening, silvery white areas behind the trigone, in addition to a diffuse cystitis. Specimens removed from these areas showed typical leucoplakic changes.

I November he — — —

Autopsy was, unfortunately, not obtainable. The remaining kidney it will be remembered was poor at time of operation.

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Fig. 4. Leucoplakia in vicinity of the neoplasm.

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or the ulceration due to impaction added to the irritation of infection at the ureteropelvic junction or at a point shortly below it. With leucoplakia existing at this point, the

of epidermis to develop malignancy when out of its normal environment is shown by an experiment performed by Pflüger and Finger.¹ A scrap of epidermis transplanted in the peritoneum developed into a tissue like a horny cancer.

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I—PAPILLOMATA OF THE URETER

| No. | Age | Sex | Symptoms | | | How diagnosed | | | Situation | Associated lesions |
|-----|--------|-----|---------------------------------|-----------|------|--|--|----------|-------------------|---|
| | | | Duration | Frequency | Pain | Cystoscopy | Operation | Exposure | | |
| 1 | 36 | F | 3 yrs | | | Protruding tumor | Transurethral removal, recovery | | L lower | L downward extension |
| 2 | 66 | M | 3 yr | | | Bleeding obstruct at 8 cm. R. | Vesico-ureterectomy, recovery | | R lower | R. Hydronephrosis, extension of papilloma |
| 3 | 60 | F | 10 mo. | | | Protruding tumor | Transurethral resection, ureter to unobstructed recovery | | R lower | Hydronephrosis, Calculus in growth |
| 4 | 35 | F | 3 yr | | | Bleeding obstruct on L. | Transurethral resection, ureter to unobstructed recovery | | L upper | |
| 5 | 37 | M | 10 yrs | | | Protruding tumor | Transurethral removal, ureterectomy for postoperative recovery | | R lower | |
| 6 | 60 | M | | | | | Vesico-urectomy, rapid cure | | L lower | |
| 7 | 8 | F | | | | | | | L upper | Hydronephrosis |
| 8 | 10 mo. | M | 3 yr (also 4 parts cl. in 1 yr) | | | | | | R diffuse | Pyelo-renal abscess, fistula |
| 9 | 10 | F | 4 mo. | | | | | | L diffuse | Hydronephrosis |
| 10 | | | | | | | | | L lower | Pylo-urethral carcinoma, fistula |
| 11 | | M | 3 yr | | | Uter. cut up, protruding tumor seen | Vesico-urectomy, vesico-ureterectomy, recovery | | R upper and lower | Calculation in upper, Hydronephrosis |
| 12 | 78 | F | 3 mo. | | | Protruding tumor | Transurethral resection, ureter to unobstructed recovery | | R lower | |
| 13 | 60 | F | | | | Bleeding obstruct at 9 cm. | F. ligation | | Lower | |
| 14 | 19 | M | | | | | Vesico-urectomy | | L diffuse | |
| 15 | 16 | M | | | | | | | R upper | Bladder cancer |
| 16 | 2 | M | | | | | | | L upper | Calculation |
| 17 | 18 | M | | | | | | | Upper and lower | |
| 18 | 19 | M | 10 mo. | | | Exposed cystoscopy, vesico-urectomy, (resection), recovery | | | R lower | |
| 19 | 60 | F | 14 yr | | | Vesico-urectomy | | | R upper | Calculation |
| 20 | 3 | M | | | | Vesico-urectomy, vesico-urectomy, recovery | | | L lower | |

carcinomata. No mention of associated leukopakia is made. Five occurred in males and in females. Haematuria was noted in 4 and hydronephrosis in 8. Four were below the age of 45.

A protruding tumor was observed cystoscopically twice and obstruction to the ureter catheter twice. In Quinby's case the ureterogram showed a large filling defect corresponding to the site of the tumor.

The kidney was tapped once, nephrotomy

was performed once and nephrectomy once. In two cases exploration proved the cases inoperable. In Quinby's case ureterectomy and subsequent nephrectomy yielded a good result.

In 11 instances penitential extension or metastasis made the case hopeless. The disease apparently spread early and extensively. Calculi were noted twice.

Jonas's case of tumor arising in a small diverticulum was classified as a benign pap-



Fig. 7. Transitional epithelium of lower ureter.

extended 4 centimeters up above the end of his catheter. Beer made the diagnosis by

during a free interval.

The following operations were performed in attempts to diagnose or cure. For tumors protruding into the bladder: transvesico-ureteral removal, 2; transvesical resection with re-implantation of the ureter, 2; all successful. In one of the first group a nephrectomy was done for secondary pyelonephritis. For the invisible tumors: nephrotomy, 2; nephrectomy, 4, of which only one met the indication because the growth was

— In 5 cases there was

primary ureterectomy leaving the kidney. In Culver's case a secondary ureterectomy the kidney having been removed by another surgeon. Secondary nephro-ureterectomy was done in Le Dentu's case after nephrotomy. Primary aseptic nephro-ureterectomy was done in Beer's case only. Marion apparently cured his case by fulguration with the electrode at the bleeding ureteral obstruction.

Neelsen's specimen was of unusual interest. The ureter bifurcated 5 centimeters above the bladder. The lower branch and pelvis showed no abnormality. The tumor was located in the upper part of the upper branch and the corresponding portion of the kidney presented marked ectasis with destruction of the parenchyma. The diagnostic difficulties under such circumstances are apparent. Ureteral calculus was associated with the growth in four instances.

II. PAPILLARY CARCINOMATA OF THE URETER

Of 12 cases, 5 are reports of autopsy. Eight cases occurred in males, 4 in females. Only one patient was under 45. Hematuria was noted in 11 and hydronephrosis in 8 cases.

In the cases of Finsterer and of Judd and Struthers, growth was seen macroscopically.

— Chevas-

— from the

ureteral orifice and encountered obstruction at two levels with increase of bleeding upon manipulating the catheter. Chlari found an obstruction at 8 centimeters and obtained only some bloody exudate.

The operative procedures employed were the following. In Finsterer's case 14 centimeters of the lower ureter were resected and the proximal end reimplanted. At the time of the report the patient was apparently well but the author could not exclude the presence of other tumors higher up. Nephrectomy was performed three times, followed by ureterectomy in two (Van Capellen, Judd and Struthers). In Israel's case autopsy after splenectomy and nephrectomy revealed the true condition. Primary nephro-ureterectomy was performed by Chevassu and Mock, and Chlari. It was attempted by Metcalf and Safford but the case was inoperable.

—

lungs) were present in 5.

III. NON-PAPILLARY CARCINOMATA OF THE URETER

There are 14 of these, of which 7 are autopsy reports. Four were squamous-cell

III—NON PAPILLARY CARCINOMATA OF THE URETER

A Squamous celled

| No | Age | Sex | Symptoms | | | | How diagnosed | | | Situation | Associated lesions |
|----|-----|-----|----------|-------------|------|----------------|---------------|-----------|---------|-----------|--------------------|
| | | | Duration | How started | Pain | Hydronephrosis | Cystoscopy | Operation | Autopsy | | |
| 14 | 31 | M | 14 mos | | | | | | | | |
| 15 | 46 | M | yr | | | | | | | | |
| 16 | 60 | F | yr | | | | | | | | |
| 17 | 34 | F | mos | | | | | | | | |

B. Carcinoma Solids are nodular

| | | | | | | | | | | | |
|----|----|---|-------|--|--|--|--------------------------------|---------------------------|--|------------|-------------------------|
| 18 | 51 | M | 7 yr | | | | | Nephrectomy | | L. lower | Calculus Metastases |
| 19 | 67 | M | mos | | | | Protruding tumor | Transurethral resection | | R. lower | Metastases |
| 20 | 50 | F | 6 mos | | | | | | | R. lower | Local extension |
| 21 | | F | | | | | | | | L. lower | In dilatation of ureter |
| 22 | 66 | F | | | | | | | | L. lower | Urinary perforation |
| 23 | 48 | F | 3 yrs | | | | Obstructed on defect in ureter | Transurethral Nephrectomy | | L. middle | |
| 24 | | F | | | | | | | | L. upper | Local extension |
| 25 | 6 | F | | | | | | | | R. lower | Metastases |
| 26 | 39 | F | | | | | | | | L. callosa | |
| 27 | | F | | | | | | | | R. upper | Metastases |

passes an obstruction and evacuates a hematonephrosis one should strongly suspect a primary pelvic tumor with ureteral implantation

If the examination is made during a period of hematuria bloody efflux from the ureter with obstruction to the catheter and in

tically certain

A ureterogram may demonstrate a definite filling defect with dilatation above it.

If a nephrectomy has been performed and bleeding continues from the ureter on the same side the diagnosis is practically certain and may be strengthened by a number of the above findings.

It is evident from the many possible cystoscopic findings that a positive diagnosis is rarely attainable. Ureteral calculus, tuberculous stricture of the ureter and even simple stricture of the Hunner type must be excluded. In the only case of undoubted Hunner stricture which I encountered there were attacks of hematuria, and bleeding

could be induced by manipulating the ureter catheter at the site of obstruction. The subsequent complete relief obtained by ureteral dilatation cleared up the situation

TREATMENT

In the case of visible tumor proven benign by biopsy fulguration may be employed but if ureteral bleeding continues or if there is no visible tumor aseptic nephro-ureterectomy as described by Dr Beer is the procedure indicated. A less extensive operation does not meet the indications because first the kidney is probably rendered useless already second there may be multiple tumors in the pelvis and ureter third the tumor may be malignant. A partial resection of the bladder may be necessary in addition when the growth involves the ureteral ostium

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II—PAPILLARY CARCINOMATA OF THE URETER

| A | Age | Sex | Symptoms | | | | How diagnosed | | | Situation | Associated lesions |
|----|-----|-----|---------------|-----------|------|---------------------|---------------------------------------|--|---------|------------------------|-----------------------------------|
| | | | Discoloration | Hematuria | Pain | History of symptoms | Cystoscopic | Operative | Anatomy | | |
| 1 | 60 | M | 8 wks | | | | | Exstrophy and Lithotomy | | L. lower R. lower | None; metastases |
| | | | | | | | | | | L. middle | |
| | | | | | | | | | | L. lower | |
| | | | | | | | | | | L. lower | |
| 17 | 60 | F | 10 yrs | | | | | Exstrophy and Lithotomy | | L. Middle adjoining | Metastases |
| 18 | 5 | M | 7 yrs | | | | Protruding tumor | Exstrophy and Lithotomy and partial bladder incision necrosis | | R. lower | |
| 19 | 51 | M | | | | | | | | L. upper | |
| 20 | 7 | M | 7 yrs | | | | | Exstrophy and partial ureterotomy | | Lower | Cystical calculus with a polyp |
| 21 | 65 | M | 2 mo | | | | | | | L. lower | Calculus Metastases |
| 22 | 60 | F | 1 mo | | | | | | | R. lower | Metastases |
| 23 | 61 | M | 4 mo | | | | Atypical epithelial cells in urine | | | L. lower | Metastases |

illoma by Spiess, but from the author's description I believe it was an early carcinoma. Quinby called his case a mesothelioma but from the pathologist's report of the histology it appears to be a carcinoma.

DIAGNOSIS

The chief manifestations of tumors of the ureter are hæmaturia, pain due to either renal colic, chronic distention of the kidney pelvis or periureteral extension and hydronephrosis. The difficulty of making a pre-operative diagnosis of ureter tumor is shown by the

or a pedunculated tumor may protrude from the orifice constantly or intermittently with the effort. If cystoscopy is done in a free

being voided however one will be surprised to find the blood coming, not from the visible tumor but from the ureteral orifice on the corresponding side. In some cases with a clear or nearly clear bladder urine the ureter catheter passing an obstruction near the orifice will yield a bloody urine.

In these cases of visible papillary tumors, a growth higher up in the ureter or kidney pelvis must be suspected. If visible tumors have been removed by forceps or fulguration

the cases collected, the cases may be separated separately or in various combinations, are suggestive. Two or more cystoscopic examinations are usually required to secure the necessary data.

I. Cases with visible tumor. A papillary tumor may be found in the trigonal or para-trigonal area, or fine finger-like projections may form a corolla about the ureteral orifice

continues certain cystoscopy a free interval, an obstruction in the ureter which bleeds on manipulation of the catheter is suggestive but calculus must be excluded by X-ray and wax tipped bougie. If the catheter

III—NON PAPILLARY CARCINOMATA OF THE URETER

A. Squamous cell

| No. | Age | Sex | Symptoms | | | How diagnosed | | | Situation | Associated lesions |
|-----|-----|-----|----------|-----------|------|---------------|-----------|---------|-----------|--------------------|
| | | | Dysuria | Hematuria | Pain | Cystoscope | Operation | Autopsy | | |

| | | | | | | | | | | |
|----|----|---|--------|--|--|----------------------------|-------------|--|----------|---------------------|
| 37 | 46 | F | 10 mos | | | Epithelial tumor in ureter | Nephrectomy | | R. lower | Calculus Metastases |
|----|----|---|--------|--|--|----------------------------|-------------|--|----------|---------------------|

B. Chondrosarcoma Solenoid ureter modification

| | | | | | | | | | | |
|----|----|---|-------|--|--|--|---------------------------|--|-----------|---------------------------|
| 38 | 5 | M | 7 yrs | | | | Nephrectomy | | L. lower | Calculus Metastases |
| 39 | 41 | M | 6 mos | | | Protruding tumor | Transurethral resection | | R. lower | Metastases |
| 40 | 38 | F | 5 mos | | | | | | R. lower | Local extension |
| 41 | 44 | F | | | | | | | L. lower | In diverticulum of ureter |
| 42 | 66 | F | | | | | | | L. lower | Unusual perforation |
| 43 | 38 | F | 3 wks | | | Obstruct at 14 cm defect at ureteropelvic junction | Transurethral Nephrectomy | | L. middle | |
| 44 | 1 | F | | | | | | | L. upper | Local extension |
| 45 | 41 | F | | | | | | | R. lower | Metastases |
| 46 | 30 | F | | | | | | | L. distal | |
| 47 | | F | | | | | | | R. upper | Metastases |

passes an obstruction and evacuates a hematuria one should strongly suspect a primary pelvic tumor with ureteral implantation

If the examination is made during a period of hematuria, bloody efflux from the ureter with obstruction to the catheter and increased bleeding upon manipulation is highly suggestive. If on passing the obstruction clear urine is obtained the diagnosis is practically certain.

A ureterogram may demonstrate a definite filling defect with dilatation above it.

If a nephrectomy has been performed and bleeding continues from the ureter on the same side, the diagnosis is practically certain and may be strengthened by a number of the above findings.

It is evident from the many possible cystoscopic findings that a positive diagnosis is rarely attainable. Ureteral calculus, tuberculous stricture of the ureter and even simple stricture of the Hunner type must be excluded. In the only case of undoubted Hunner stricture which I encountered there were attacks of hematuria, and bleeding

could be induced by manipulating the ureter catheter at the site of obstruction. The subsequent complete relief obtained by ureteral dilatation cleared up the situation.

TREATMENT

In the case of viable tumor proven benign

The procedure indicated is the procedure indicated. A less extensive operation does not meet the indications because first the kidney is probably rendered useless already, second there may be multiple tumors in the pelvis and ureter, third, the tumor may be malignant. A partial resection of the bladder may be necessary in addition when the growth involves the ureteral ostium.

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ELUSIVE ULCER OF THE BLADDER

A FURTHER REPORT¹

BY HERMAN L. KRETSCHMER, MD F.A.C.S. Chicago

IN a previous paper on the surgical treatment of elusive ulcer of the bladder² 5 cases were reported in which the diagnosis was verified by operation and histological examination of specimens obtained.

I now have including the previously reported cases
Because
t in this
to study

this larger group of cases with the idea of attempting to bring out any possible new phases of the subject and also to review the previously published cases to determine if possible, the results of treatment with special reference to the end results.

The time that has elapsed since the first 5 cases were operated on may not be considered very long (11 months the longest and 16 months the shortest) yet it seemed worth while to get in personal communication with these cases to determine just what has been accomplished.

Likewise it was thought desirable to ascertain the status of the cases operated upon more recently with the same object in view. For this reason the patients were asked to call at the office for personal interviews and for urinary examinations. In some instances the patients lived too far away to report in person and their present status was obtained by personal correspondence. A summary of these cases is given at the end of the paper.

SYNOPSIS

Much credit is due to Hunner who called attention to this lesion and outlined a definite surgical procedure in its treatment namely wide resection of the ulcer bearing area. In his report he used the term "Elusive Ulcer" which has been somewhat confusing, since those who become interested in these cases immediately begin looking for something

elusive when as a matter of fact the ulcers are not at all elusive.

Practically every author writing on this subject has suggested a new name which only adds to the confusion and multiplication of synonyms. Nitze many years ago suggested the term *Cystitis Parenchymatosa* but this has not met with much favor since the term has never been used.

ETIOLOGY

Up to the present time it can be stated that the cause of this lesion is unknown. Hunner suggested the possibility of a distant focus of infection as playing a rôle in the

elusive ulcer and other infections of the urinary organs are due to focal infections harboring streptococci which have a selective affinity for the urinary tract.

RECORD

From the very start one striking feature has been that females have been much more frequently attacked than males. Thirteen of the 14 cases to be reported in this paper occurred in women and only one in a male. Hunner's series (25 cases) all occurred in females. Bumpus reported 15 cases, 13 of which were females. Keene reported 10 cases, Reed 5 and Fowler 3 all in women. Hunt reported 20 cases operated upon, 18 of which were females. The only large series of cases in males is reported by Frome who in 26 cases, reported 23 cases in males and only 3 in females.

Hunt stated that since the teeth, tonsils and sinuses are foci of infection common to both sexes it seems that some additional etiological factor other than focal infection must explain the frequency of the lesion in the female and its rarity in the male.

¹ORIGINAL PRESENTATION OF A RECALLED ELUSIVE ULCER OF THE BLADDER. J. Am. M. Ass. 1921, April.

Marital state and pregnancy Most of the authors are agreed that matrimony and pregnancy have no etiological bearing on this condition inasmuch as cases are seen in both the married and unmarried. Ten of the 14 cases are married and 3 have never been pregnant. These 3 with the 2 single women, make a total of 5 who have never borne children.

Careful pelvic examinations were made without finding pelvic pathology hence lesions of the pelvic organs can be dismissed as etiological factors and also as factors in the production of the urinary symptoms.

AGE

It would seem from the table of ages that this is essentially a disease of adult life. The youngest patient in this series is the one male, aged 24. The oldest patient was 61.

| | Cases |
|----------------|-------|
| 21 to 30 years | 3 |
| 31 to 40 years | 6 |
| 41 to 50 years | 5 |
| 51 to 60 years | 0 |
| 61 to 70 years | 1 |

PREVIOUS OPERATIONS

In no department of surgery is the value of number of patients with urinary symptoms

on kidneys and pyelitis and diagnoses either of careless diagnosis or insufficient pre-operative study. Cases of elusive ulcer are no exception to this statement.

Thirteen of the 14 cases gave a history of previous surgical operations. These operations can be classified into two groups. In

following operations tonsillectomy (2 cases) tonsillectomy and eye operation (1 case) hemorrhoidectomy and operation for enlarged left testicle (1 case).

The remaining 9 cases had all been operated on previously for relief of their urinary symptoms, but the operations failed to relieve the bladder distress. The urinary organs had been operated on in 2 of these cases. In one case a nephrectomy was performed under the mistaken diagnosis of renal tubercle. This case was described in detail in the previous report on this subject. The second patient was operated on and was told that a tumor of the bladder had been removed. The remaining cases had the following gynecological and abdominal operations:

Case 1. Appendectomy, resection of ovaries and shortening of round ligaments.

Case 6. First operation, suspension of uterus; second operation, perineorrhaphy; third operation, hysterectomy; fourth operation, removal of uterine carcinoma.

Case 8. Appendectomy and left ovariectomy. Hysterectomy advised just prior to coming under observation.

Case 9. Uterine tumor removed; second operation, salpingectomy and oophorectomy.

Case 12. Ventral suspension.

Case 13. Curettage.

There was only one patient who had never been subjected to any sort of surgical operation—a female (Case 2).

PATHOLOGY

All the specimens removed at operation were subjected to careful histological examination. The microscopic picture was almost uniform. While the changes varied somewhat in extent and in minor details, the same general picture was found as a rule in all 8 cases. The ulcer-bearing area showed a loss of the epithelium. In several instances there appeared to be a flattening of the epithelium so that, as the edge of the ulcer was approached the epithelium was much

on this subject. In this group we have 4 cases—3 females and 1 male—who had the

flattened and formed a very thin layer. In one case the epithelium appeared to have changed to the flat squamous type of cell. Some of these cells seemed to be hydrophilic. Occasionally the surface of the ulcer was covered with fibrin and many red blood cells were noted in some of the fibrin masses. The fibrin was not limited to the surface of the ulcer but extended beyond the edge and over and on to the mucosa. At times red blood cells were seen adhering to the surface of the ulcer.

The most extensive changes were those found in the submucosa which showed many new formed blood vessels and these were packed full of red blood cells. Round-cell infiltration was seen in the submucosa. There were areas in which the collections of round cells were very small and in others, large masses of round cells were noted. Some of the sections showed these small, round cells closely crowded together and with the border rather sharply defined and these areas resembled somewhat the collections of cells seen in so-called cystitis follicularis, rather dense and visible to the naked eye.

Round-cell infiltration was also seen occasionally between the muscle bundles. In several of the sections there were newly formed connective-tissue cells in the submucosa and here and there the submucosa appeared definitely edematous. In two of the sections, gland tubules were seen and these differed in no way from the gland tubules in cases of cystitis glandularis. In one of the sections the cells forming the tubules showed secretion within the cell so that they had the appearance of typical goblet cells. A combination of follicle formation and gland formation was not found in the same specimen.

The changes in the muscular coat were not so extensive as the changes in the submucosa. Occasionally areas of round-cell infiltration were noted, which, however, were not extensive. In several of the sections the muscle bundles were apparently separated by edema.

A very striking change was that found at operation the bladder wall showing an enormous thickening entirely out of propor-

tion to the size of the ulcer. This was so well marked that in several of the cases it was possible to foretell the exact location of the ulcer or ulcers before opening the bladder.

As a rule the peritoneal coat showed decided thickening.

The specimens in 3 cases were turned over to Dr. Dick for special bacteriological examination and he attempted to grow organisms from the ulcers. The technique employed was maceration of the excised ulcer bearing areas of the bladder. This experiment showed the presence of bacillus coli in Case 5, streptococci in Case 8 and a few colonies of staphylococcus albus and many colonies of diphtheroid bacilli in Case 9.

DURATION OF SYMPTOMS

From a review of the histories it would appear that this is essentially a chronic disease. This, however, may be more apparent than real, and the long duration of the symptoms is undoubtedly due to the fact that although the patients had consulted many physicians and had submitted to many and varied surgical operations, the long period of illness was in reality due to the fact that the condition was not recognized. In one patient the symptoms had been present 17 years, during which period she had been operated upon four different times, the following operations having been performed: (1) suprapubic hysterectomy.

The shortest duration of symptoms was 11 months and occurred in the only male case in this series. A cystoscopic examination made a few days after admission to the hospital established the diagnosis, and operation gave complete relief of his symptoms.

These 2 cases, from the two extremes of disease duration, are rather striking showing in the one instance how easy and simple it is to straighten out these cases if the diagnosis is made at once, as against a period of suffering for 17 years, a submitting to four surgical operations, and no relief of symptoms. There does not seem to be any uniformity in the duration of the disease as can be seen from the following table:

11 months
1 year
1 years
3 years
4 years
6 years
8 years
9 years
10 years
13 years
17 years

Count
1
1
1
1
1
1
1
1
1
1
1

SYMPTOMS

Of the various symptoms mentioned by these patients, two were constant and present in each case. These symptoms were frequency of urination and pain. The pain was generally described as severe in character and it was of two kinds: pain that was present more or less constantly and pain that was present during, or aggravated by, micturition. In some instances the patients were unable definitely to localize the pain, simply stating that the pain was located in the bladder. Some were more specific and volunteered the information that the pain and soreness were located in the neck of the bladder. In one case the pain was so severe as to produce spasms of the bladder. In another case in addition to the pain in the bladder the patient complained of pain over the right hip, and in another case there was pain in the vagina. In one case the bladder pain radiated to the kidneys. In another associated with the pain in the bladder there was a constant pain over both kidneys, which may have been due to the pyelitis that was also present. The pain was often aggravated by the local treatment to which some of the patients had been subjected prior to coming under observation.

Apart from pain in the bladder and radiating pains, there was also present pain on urination. This pain was described in such terms as burning, smarting, cutting, toothache-like and cramp-like expressions which would lead one to suspect that the degree of pain was rather severe.

Frequency of urination was found to be present in each and every case, and was more or less constant, the patients never being completely free of this symptom although

the degree varied. It would appear that with an apparent or temporary improvement in the local condition there was a diminution in the number of micturitions, both day and night. All these patients were obliged to arise at night, varying from once every hour to once every 30 or 30 minutes, so that they were often below normal as a result of loss of sleep as well as from the effects of the continued painful urination. In several the frequency seemed to bear some relationship to menstruation, since there was an increase of frequency just prior to or during the menstrual period.

Hematuria. The presence of gross blood in the urine was noted in 6 of the 14 cases. This varied in severity from a slight amount of bleeding just enough to stain the linen, to the passage of bloody urine with clots. Sometimes the bloody urine was noted only after instrumentation of the bladder such as the passage of catheters and after bladder lavage. If during irrigation the bladder is overdistended bleeding is easily started. This can be demonstrated very convincingly if just prior to the close of the examination, a little more fluid is allowed to run into the bladder so as to cause overdistention.

Other urinary symptoms were not present as constantly as the previously described group. Urgency was mentioned in 6 cases, burning on urination in 6 cases, tenesmus in

not of any moment. Calculi were present only once.

Röntgen-ray examinations of the urinary tract were made in each case. No evidence of calculi was found in the kidneys, ureters,

case. Careful examinations of the teeth, tonsils, and sinuses were made for foci of infection with the following results:

Case 1: Tonsils slightly enlarged. Teeth in good condition.

Case 1 Tonsillectomy advised
 Case 3 Tonsillectomy advised Also removal of
 two teeth

Two teeth discharge and

1 negative
 Possibly

Case 8 Pus expressed from tonsils Tonsillectomy advised

Case 9 Tonsils absent

Case 10 No examination

Case 11 No examination

Case 12 No examination

Case 13 Many infected teeth removed after coming under observation

Case 14 Watery discharge from right nostril Tonsils absent

TABLE I—STUDY OF URINE

| Case | Leucocyte count | | | Cultures | | | End results |
|------|-----------------|-----|---------|-----------------------|-----------------------|-----------------------|-------------|
| | High | Low | Bladder | High | Low | Bladder | |
| 1 | 700 | 70 | 700 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 2 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 3 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 4 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 5 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 6 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 7 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 8 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 9 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 10 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 11 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 12 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 13 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |
| 14 | 70 | 70 | 70 | Staphylococcus aureus | Staphylococcus aureus | Staphylococcus aureus | None |

painful and the bladder capacity very limited. Cystoscopically the ulcers varied in size from a pinpoint to a cubic millimeter in diameter. The area of ulceration was surrounded by a zone of hyperemia which was sharply circumscribed and by the bladder mucosa which appeared normal. The surface of the ulcer may be covered with mucus. Areas of edema around the areas of ulceration were not seen. Overdistention of the bladder was the cause of pain and of starting hemorrhage which was so profuse at times as to interfere with the cystoscopic examination.

The cystoscopic picture is variable depending on the state of healing of the ulcer. This has led to the term "elusive ulcer" which term has been rather confusing.

In case the surface of the ulcer is healed there is seen a definite area in which there is an increased vascularity. Most often however definite ulceration is seen. Many times it is necessary to carry out repeated cystoscopic examinations before making the final diagnosis. In several instances the lesion was at first confused with tuberculosis.

Location. In 9 cases the area of ulceration was seen in the apex of the bladder that is the dome of the bladder. In 3 cases areas of ulceration were seen on the posterior wall only. In 2 cases the left lateral wall was the site of the ulceration and in one case the anterior wall was the seat of ulceration. In some of the cases there was more than one area of ulceration. In one case there were areas of ulceration near the right ureteral orifice in addition to ulcers in the apex.

In 13 of the 14 cases accurate records of urine studies were available (See Table I).

A review of the table shows only one patient who had a normal urine. Seven cases had some pus in the urine. The amount was variable. Leucocyte counts were made in these cases in order to have a more or less accurate record of the amount of pus present. The highest count was found in Case 1 in which 700 pus cells per cubic millimeter were found. The lowest count was 70 cells.

In 7 cases the ureters were catheterized. In Cases 2 and 14 pus was found on both sides. In Cases 5 and 9 counts are a bit

in 3 cases one kidney only was sterile. In the remaining cases positive cultures showed both kidneys and bladder infected with bacillus coli (1 case) bladder and right kidney with bacillus coli (1 case) colon and staphylococcus (1 case) streptococcus and staphylococcus (1 case) staphylococcus in right kidney and bladder (1 case) staphylococcus only (1 case) diphtheroids in left kidney and bladder (1 case). The statement that the colon bacilli outgrow other organisms apparently does not hold in this group of cases. Red blood cells were found in the urine in 3 cases.

CYSTOSCOPY

The prominent feature in this group of cases is that the cystoscopic examination was

Diagnosis Once the condition was recognized it was not difficult to diagnose in the subsequent cases. Because of the history of long-standing distress, the extreme pain in introducing the cystoscope, which in some cases necessitated the use of anesthesia, the limited bladder capacity and the presence of areas of ulceration in the bladder my chief concern was in regard to the exclusion of tuberculosis. This was effected by diligent search for tubercle bacilli in stained specimens as well as by repeated guinea pig inoculations.

TREATMENT

The consensus of opinion among urologists is that this is a surgical condition and that patients have had all sorts of local treatment, the only result of which seems to be an aggravation of symptoms.

Wide resection of the ulcer bearing area is the only treatment that has been carried out in this series with the exception of two cases which were treated by fulguration. In one case fulguration had been instituted elsewhere and although most authors condemn this form of treatment yet the result in this case (perhaps temporary) was rather striking as brief résumé of patient's history shows.

tuberculosis no improvement. Complained of frequency of micturition, varying from every 5 minutes to 1 hour and of pain in bladder-hematuria. Eighteen months after resection of ulcer patient stated, her urinary condition was very satisfactory and it was almost impossible to be-

and pain in bladder during the operation. Twenty-five months after operation, patient is free of all urinary symptoms. Still has pain in the back due to pyelitis. Now voids four or five times in the day and once at night. A recent examination of the urine showed a faint trace of albumin, a few pus, and red blood cells. Cyturms showed bacillus coli and a cell count of 92.

CASE 3 Mrs. T. age 32. Symptoms began 3 years ago with burning on micturition, hematuria, and

complained of painful micturition, hematuria, and

urologic examination showed the bladder ac-

and fever. Later backache

relieved of her symptoms

RESULTS OF TREATMENT

CASES OPERATED UPON

CASE 1 Mrs. P. age 28. Onset of symptoms 9 years ago. Left nephrectomy performed for renal

urinary condition

about 2 hours but after that has pain in the bladder. This condition is present day and night. Before

Cystoscopy August 16 1921 Bladder capacity about 4 ounces. No stone or tumor seen. Near the internal urethral orifice was seen a very vascular area about the size of a split pea, in the center of which was a darker red area. No edema. Two similar areas were seen in the apex and one on the left lateral wall. The dark area in one lesion looked

patient can retain the urine for some time after having a desire to void. She thinks she has gained in weight. Still has an occasional slight headache

CASES NOT OPERATED UPON

CASE 6 Mrs. C. age 40. Symptoms started 17 years ago after birth of her second child, at which time she had pain in bladder pain in right kidney region pain in right inguinal region, and frequency. Four operations were performed for this trouble: suspension of the uterus, perineorrhaphy hysterectomy, and removal of urethral caruncle. She has had no treatment of any kind since coming under observation. In past year her condition has greatly improved and she has suffered less than at any time in the past 18 years.

CASE 10 Mrs. C. age 50. Soreness at neck of bladder started about 2 years ago also had frequency of urination and nocturia. Not treated

clearly the lesion in the right side

Cystoscopy September 28 1921 Three or four areas of hyperaemia were seen in the apex of the bladder. No real ulcerations seen. Ureteral openings were normal and catheterized without difficulty or obstruction.

dences of tuberculosis

she had a recurrence of her symptoms but not as marked as formerly

SUMMARY

Of the 8 cases operated upon one is having a relapse and another has pus and staphylococci in the urine. The remaining cases consider themselves well that is, they are free of symptoms.

Two cases were treated by fulguration with an immediate relief of symptoms. Time only will tell whether this will be permanent.

Of the remaining 4 cases, 2 are no longer under observation and the other 2 have shown an improvement in their condition this without any treatment. However there are 2 cases are not entirely free of symptoms.

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who just threatens to return uses vaginal douche

CASE 14 Mrs. S. age 39. Symptoms have been present for years. Started with gradual onset of frequency burning and pain in bladder. No treatment until 3 years ago when patient con-

3
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which have recur. Symptoms have never been very acute. In last month she has had a dull pain over the right hip when lying down. Headache has been present continuously for 1 month

THE RESULTS OF OPERATIONS FOR CANCER OF THE LIP AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1909 TO 1919¹

By CHANNING C. SIMMONS, M.D. F.A.C.S. and ERNEST M. DALAND, M.D. BOSTON

THE following paper is based on the cases of cancer of the lip admitted to the Massachusetts General Hospital during the ten-year period from January 1, 1909, to January 1, 1919. This period was chosen in order that three years should have elapsed since operation in every case and no patient who is not known to have been free from the disease for at least that length of time after operation has been considered as a cure.

There were 172 primary cases admitted to the hospital during this period together with 15 cases of cancer of the lip recurrent from previous operation. The cases were operated upon by 19 members of the surgical staff to whom the writers wish to acknowledge their appreciation for permission to report them. Thanks are also due to Dr. H. F. Hartwell, surgical pathologist, for assistance in reviewing the pathological specimens.

In making this analysis we have reviewed every case admitted to the wards during the ten-year period and in obtaining the figures all cases have been included in which an at

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as a cure unless a pathological examination of the tissues removed at operation was made, and patients dying within the arbitrary three year limit without recurrence have been excluded as inconclusive.

The form adopted in reporting this series is one that was first used in a paper on the

... of the buccal
found in
with those

of other articles. The series has since been used in reporting two other series of cases (4-5) and has proved very satisfactory.

It was possible, in fact, to compare accurately the results of a personal series of cases of cancer of the breast with those of a previous series representing the experience at the Massachusetts General Hospital (6).

The accepted operation for cancer of the lip is excision of the growth, with or without a plastic closure of the defect and the removal of the fat and glands in the submental and submaxillary space and to the bifurcation of the carotid, from one or both sides of the neck depending on the situation and size of tumor. We shall speak of this hereafter as the radical operation. We have used the term "palliative" operation to describe cases in which the growth alone was excised and no dissection of the neck done. We consider this operation justifiable only in the very early cases which are clinically precancerous, or where the radical operation is contra-indicated on account of the age or physical condition of the patient.

The total number of cases available for study was 187 divided as follows:

| | |
|-------------------------------------|-----|
| Recurrent from previous operation | 15 |
| Inoperable or operation not advised | 5 |
| Refused operation | 4 |
| Radical operations | 123 |
| Palliative operations | 41 |
| Total cases | 187 |

No attempt has been made to determine the end results in the recurrent cases or those in which no operation was performed. Of the remaining 163 cases, the end-result is known in 138 instances, or 84.7 per cent of the cases.

ETIOLOGY

No new facts in regard to the etiology of cancer of the lip have been brought out by this study. The disease was confined almost entirely to men, there being 170 males and 17 females in the series. The growth occurred on the upper lip 4 times and on the lower 168. People of all ages were affected, the extremes

being 24 and 93 years of age, although it was more common between 45 and 70. The average age was 54.75 years.

AGES OF PATIENTS

| | | | |
|----------------|----|----------------|----|
| 20 to 25 years | 1 | 60 to 65 years | 8 |
| 25 to 30 years | 4 | 65 to 70 years | 18 |
| 30 to 35 years | 3 | 70 to 75 years | 25 |
| 35 to 40 years | 15 | 75 to 80 years | 3 |
| 40 to 45 years | 1 | 80 to 85 years | 0 |
| 45 to 50 years | 17 | 85 to 90 years | 1 |
| 50 to 55 years | 24 | 90 to 95 years | 1 |
| 55 to 60 years | 1 | Not stated | 2 |

Persistent chapped lips, keratosis, seborrhea or leucoplakia of the lips preceded by

the appearance of the cancer. Patients with this history are particularly liable to have what we have termed re-occurrence, of the disease, in distinction to recurrence, after the removal of a primary cancer. By re-occurrence we mean the formation of a second cancer of the lip after the removal of a primary growth, the second cancer being on a portion of the lip remote from the scar of the operation. Eight cases in this series are cases of re-occurrence and all presented a well healed scar at one point on the lip and a cancer at another point. Two other cases in the series developed a re-occurrence after removal of the primary growth in the hospital. These were excised and both patients are living and well more than three years after the second operation.

One hundred patients smoked tobacco including 6 who also chewed. Pipe smokers predominated. Nine patients did not use tobacco in any form, while the records are inconclusive in 63. One patient who did not use tobacco was a shoe worker and in the habit of keeping nails in his mouth while at work. Broders has shown that the percentage of tobacco users in patients with cancer of the lip is approximately the same as that in a series of 500 patients without cancer of the lip but that the percentage of pipe smokers is much greater.

Wassermann examinations were made at the hospital as a routine procedure during

the latter part of the decade studied but not during the first part. There were examinations on only 56 patients. The reaction was positive in 12 and negative in 44 cases. It is interesting to note that in two cases a primary lesion developed at the site of the scar of excision of the cancer of the lip in one of which the nodule was excised under the impression it was a recurrence. In a third case a cancer developed in the scar of a chancre of the lip acquired two years previously.

PATHOLOGY

Specimens from 103 of the 131 patients in whom the end result is known, were available for re-examination. The tumors varied from the early papillary type of cancer a condition which might almost be termed precancerous, to carcinoma of the squamous-cell type but with little differentiation of the cells. An attempt was made to grade these specimens into three groups according to their malignancy the criterion being the amount of differentiation of the cells and the number of mitotic figures. In Group 1 were placed those tumors in which the cells had a marked tendency to differentiate as shown by the formation of epithelial pearls and in which mitotic figures were comparatively infrequent. In Group 2 were placed those cases in which there was less tendency to differentiate and evidence of more rapid growth. In Group 3 were placed cases in which the cells infiltrated the tissues and showed little or no tendency to differentiate. This grading was done without knowledge of the clinical side of the case and the results compared later. They are as follows:

RESULTS—PATHOLOGICAL CLASSIFICATION

| | Living | Dead |
|---------|------------------------|----------|
| Group 1 | 53 cases (85 per cent) | 12 cases |
| Group 2 | 14 cases (20 per cent) | 6 cases |
| Group 3 | 4 cases (6 per cent) | 14 cases |

It would seem therefore that other things

ONset OF THE DISEASE.

The presence of palpable glands did not necessarily mean that metastases had oc-

curred as in many cases in which the presence of glands was noted in the histology pathological examination failed to show cancer. It is impossible, however to say that metastases have not occurred unless serial sections are made of all tissue removed. Metastatic cancer was found in the glands in 24 of the 110 cases in which neck dissection was done and in which we have a report on the glands. Absence of clinically enlarged glands, on the other hand does not rule out metastases as, in 24 cases in which it was noted in the record that there were no palpable glands, cancer was demonstrated in the tissue removed from the neck in 6 or 25 per cent.

The presence of demonstrable metastatic cancer in the glands was a grave prognostic sign. In the 19 cases in which metastases were found and in which the end result is

were cured

Symptoms

scab" in 19 and a wart or tumor" in 38. In the remaining cases it was variously described as a purple crack, blister cut, etc. In a few cases it was the presence of enlarged metastatic glands in the neck that first led the patient to consult a physician.

The tumor was of comparatively slow growth, the average duration from the onset of symptoms to the admission to the hospital

with a physician was 4.35 months (data on 123 cases) and the delay from the first consultation until operation was advised averaged 1 month (data on 125 cases).

Palpable glands were noted as being present in the submental or submaxillary spaces or elsewhere in the neck in 119 of the

tion to the size or duration of the tumor except in the obviously far advanced cases. This is not surprising considering the septic condition of the mouth in many of the patients in addition to the presence of an ulcerated or partly necrotic tumor of the lip. The teeth were mentioned as being in poor condition or carious in 97 cases.

The situation of the tumor on the lip was as follows:

SITUATION OF GROWTH

| | Cases |
|-----------------|-------|
| Right side | 5 |
| Left side | 57 |
| Center | 5 |
| All lip | 4 |
| At angle of lip | 6 |
| Upper lip | 4 |
| Not stated | 13 |

The growth was described in the records under the following headings:

TYPE OF GROWTH

| | Cases |
|--------------|-------|
| Fungating | 51 |
| Ulcerative | 64 |
| Tumor | 34 |
| Warty | 14 |
| Macrularious | 19 |

OPERATION

The radical operation was performed on 122 cases with the removal of the glands from one side of the neck in 73 and from both sides in 49. The operation was performed essentially as follows: A curved incision was made beneath the jaw from the chin to about one inch below and behind the angle. This was carried through the skin and platysma and the flaps reflected. The contents of the submental space was removed and the digastric muscle developed, the facial artery being tied at its entrance into the submaxillary gland. The fat and glands beneath the angle of the jaw and down to the bifurcation of the carotid artery were dissected free and the mass, including the submaxillary gland, removed *en bloc*. The hypoglossal and lingual

ever in a large number of cases with consequent drooping of the corner of the mouth. The wounds were closed in layers, with catgut sutures to the platysma, and drained with a small cigarette wick. If the wounds were not drained serum and saliva from the intermuscular portion of the submaxillary gland not removed or from the wounded

day one from sepsis and pneumonia on the tenth day and one from probable pulmonary embolus on the second day. All of these patients were what might be termed poor surgical risks. One of the deaths occurred after the removal of the glands from one side of the neck, and two after dissection of both sides. There was no operative mortality following excision of the growth only.

Postoperative complications. In addition to the three postoperative deaths there were several cases of postoperative complications. All, with one exception, were due to some form of infection. There were 10 cases of serious sepsis, several of minor sepsis and one case of phlebitis. One patient developed postoperative pneumonia and there were three cases of severe bronchitis. There was one case of severe postoperative hemorrhage probably due to the slipping of the ligature on the facial artery which necessitated packing of the wound. All of these patients eventually made satisfactory recoveries.

Plastic operations. In 16 cases in which the growth was extensive it was found impossible to close the defect in the lip in the usual manner without tension or without making the oral opening too small. Some form of plastic operation was performed on these cases to remedy the defect. The cases have been grouped separately as the extent of the local lesion had a distinct relation to the prognosis. Thus of the 14 cases in this group that have been traced 10 have died of a recurrence of the disease while only 4 (28.3 per cent) are living and well.

SECONDARY OPERATIONS

Secondary operations for local recurrence of the disease were performed twice and both of these patients are well three or more years after the second operation. A new cancer (re-occurrence) formed at another point on the lip and was removed in two other cases. Both patients are also well three or more years after the second operation.

In seven cases in which the neck had previously been dissected a second extensive dissection was performed for recurrence. All of these patients are dead, two as a result of the operation and five of the disease.

excised by a V-shaped incision and the wound closed by sutures to the mucous membrane and skin. If it was necessary to remove a large portion of the lower lip some form of plastic operation was done to close the defect. Theoretically a bloc dissection removing the growth on the lip with the glands from the neck in one piece, is the operation of choice, but practically if the wound in the neck connects with the oral cavity extensive sepsis usually supervenes.

When the glands were removed from both sides of the neck, the incision was made beneath the jaw from below the angle on one side to a similar position on the other. In five cases a more radical neck dissection was done than that described above with the removal of the internal jugular vein the sternomastoid muscle and the glands to the clavicle.

out dissection of the glands of the neck, was performed 41 times. In 10 cases the growth was small, papillary in type, and might almost be termed precancerous. In 3 it was extensive and the operation was done to remove a sloughing tumor. In many of the remaining 28 cases, the age of the patient or his physical condition was a contra indication to radical operation, but there was a small group in which, from the records, the reason for not removing the glands from the neck was not clear.

Operative mortality. There were three postoperative deaths in the series of 122 radical operations; an operative mortality of 2.5 per cent. There was one death from erysipelas and auricular fibrillation on the seventeenth

RESULTS

There were 122 cases in which an attempt at cure by a radical operation was made. In 73 the local growth was excised and the

neck usually implied that the growth was extensive or situated in the center of the lip.

The results are about what might be expected in a series of consecutive cases in a large general hospital. Of the 122 cases the end-result is known in 103 but in 5 cases the data are inconclusive, the patients having died of some other disease within the three-year limit without recurrence. Of the remaining 98 cases, 68 are living and well with out evidence of the disease, or have died of other cause more than three years after operation, while 30 are dead, 17 from a recurrence of the disease and 3 as a result of the operation. This gives 68.1 per cent cures following the radical operation.

RADICAL OPERATIONS

| | |
|-------------------|------|
| Total cases | 122 |
| End-results known | 103 |
| Inconclusive | 5 |
| | 8 |
| | 27 |
| | 68.1 |
| | 68.1 |

If these cases are separated into two groups, Group 1 being those cases in which the glands from one side of the neck were removed and Group 2 being those in which the glands were removed from both sides of the neck. It is seen that the percentage of cures in Group 1 is larger than in Group 2. This implies only that the extent of the local disease bore a direct relation to the prognosis as the double dissection was usually done in the more advanced cases. The relation of the size of the growth on the lip to the prognosis is also shown by the small percentage of cures in the group of cases requiring a plastic operation to close the defect after excision of the growth. Thus in 14 traced cases in which the wound of the lip could be closed only by employing some form of plastic operation but 4 (28.5 per cent) are living and well

RADICAL OPERATIONS

| | Dissection glands one side of neck | Dissection glands both sides of neck |
|----------------------|--|--|
| Total operations | 73 | 49 |
| End-results known | 64 | 39 |
| Inconclusive | 5 | 2 |
| Postoperative deaths | 1 | |
| Died of recurrence | 3 | 1 |
| Three year cures | 47 | 8 |
| | (77 per cent) | (54 per cent) |

The percentage of cures in the cases in which metastatic cancer was demonstrated in the glands removed was much smaller than in the cases in which no metastases were found. In 19 traced cases in which the glands were involved by the disease 5 are

radical operation would seem to be justified if 27.7 per cent of the cases with known metastases are cured.

RESULTS—METASTATIC GLANDS

| | Cancer in glands | No cancer in glands |
|----------------------|---------------------|------------------------|
| Total cases | 24 | 61 |
| Untraced | 4 | 6 |
| End-results known | 20 | 55 |
| Inconclusive | 0 | 1 |
| Postoperative deaths | | 2 |
| Died of recurrence | 14 | 9 |
| Three year cures | 3 | 63 |
| | (27.7 per cent) | (85.8 per cent) |

The site of recurrence could not be determined in many of the cases. We have no evidence of general metastasis in any case but the data are not conclusive as the facts in regard to patients dying of recurrence were usually obtained either from letters from friends or relatives, or from the death certificates on file at the Bureau of Vital Statistics at the State House. In the only patient dying of recurrence on whom an autopsy was performed there was local recurrence only. As well as could be determined the site of recurrence was as follows:

SITE OF RECURRENCE—RADICAL OPERATION

| | |
|----------------|----|
| 1. Neck only | 13 |
| Neck and local | 3 |
| Local only | 4 |
| Undetermined | 5 |

In one case in which the glands were removed from one side of the neck the first evidence of

recurrence appeared in the glands of the opposite side.

Palliative operations (local excision only)
There were 41 cases in this group operated upon without mortality. In ten instances the tumor was small and although pathologically cancer it might well be considered clinically as precancerous. Eight of these cases have been followed and all were cured. Three cases were obviously palliative operations as the growth was large and a plastic operation was necessary to close the wound. Two of these cases have since died with both local and glandular recurrence and the third has not been traced. Of the remaining 28 cases, five are inconclusive or have not been traced and 11 have died of recurrence. Twelve (60.6 per cent) are living or have died of disease other than cancer more than three years from the date of operation. In most of these cases the radical operation was contra-indicated on account of the physical condition or age of the patient.

Taking the "palliative" operations as a group the figures are as follows:

RESULTS—LOCAL EXCISION ONLY

| | |
|--------------------|--------------------|
| Total cases | 41 |
| End results known | 35 |
| Inconclusive | 5 |
| Died of recurrence | 11 |
| Three year cures | 20 (60.6 per cent) |

Of the 13 cases dying of a return of the disease the site of the recurrence is known in 9. In 4 cases the recurrence was in the glands of the neck only in 4 it was both glandular and local and in 1 it was local only. If 27 per cent of the cases in which metastatic cancer is demonstrable in the glands removed from the neck are cured by a radical operation, it is presumable that a certain number of cases in this group would have been cured if the more extensive operation had been performed.

The average length of life of all cases dying of recurrence from the date of operation was approximately two years (23.3 months). In cases in which the glands removed at operation showed cancer the length of life was slightly shorter than the average (21.7 months). With one exception in all cases

dying of the disease the recurrence or death occurred within the three year limit. One case died of glandular recurrence 7 years after the primary operation. The history of this case is as follows:

In 1808 a cancer of the lip was removed and the glands dissected from the corresponding side of the neck. In 1914 a re-occurrence was removed from the other side of the lip but the neck not dissected.

later

CANCER OF THE LIP—RESULTS

| | |
|--|------|
| Total cases | 137 |
| Recurrent cases | 5 |
| Cases available for study of mortality etc. | 132 |
| Died of recurrence | 23 |
| Inconclusive | 41 |
| No pathological report | 9 |
| Died without recurrence less than 3 years | 3 |
| Untraced | 0 |
| Three year cures | 131 |
| Radical operations (68 per cent) | 99 |
| Palliative operations (60.6 per cent) | 33 |
| Number 3-year cures, radical operations (68 per cent) | 78 |
| Number 3-year cures, palliative operations (60.6 per cent) | 23 |
| Cases when plastic closure necessary | 20 |
| Per cent | 27.7 |
| Cases when plastic closure necessary | 86.6 |
| Cases when plastic closure necessary | 78.5 |
| Cases when plastic closure necessary | 56.8 |
| Cases when plastic closure necessary | 28.3 |

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RESUSCITATION INTRACARDIAC INJECTIONS

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THIS paper is based upon observations made during three and one-half years

British
Italian
and
American

either of spinal anesthesia and upon observations made in the clinics of his chief Professor A. J. Ochsmier at the Augustana and at St. Mary's of Nazareth Hospitals Chicago.

It was very noticeable during the Great War that patients who had suffered from severe hemorrhage did not tolerate grave operations under spinal anesthesia, several deaths occurring in this class of patients. However it is doubtful whether these seriously wounded cases could have survived under any other anesthetic unless it had been nitrous oxide and oxygen.

This same class of patients, after transfusion with blood in sufficient volume (700 to 1200 cubic centimeters) could be given spinal anesthesia with entire safety. This fact would seem to argue that, when collapse

had to keep three patients under chloroform anesthesia simultaneously inducing anesthetic

CASE 1. The patient under discussion, a young enemy soldier had been anesthetized with chloro-

incomplete systole. I then stimulated the myocardium with the point of a scalpel, a few cen-

due to muscular relaxation combined with a general relaxation of the entire body thus removing the muscular tone so important in

with immediate success in each case and with permanent success in two cases after failures by ordinary methods

The first case was seen at No. 17 Casualty Clearing Station near Ypres in Belgium in 1917. During the terrible rush of work following the British onslaught on Passchendaele Ridge it was sometimes necessary for a surgeon to operate so fast that the anesthetist

as he was deeply cyanosed, due to the pneumothorax and pulmonary gangrene. After about 15 minutes from the intraventricular injection of adrenaline, the heart again began to fall by dropped beats and

at long intervals. The depth of respiration gradually increased and the rate improved until about 30 minutes after the initial cardiac and respiratory

about 20 minutes more when the supply of oxygen failed. He then became cyanosed and the heart beat weakened somewhat. At this time a prisoner of



Fig. Back view of Case 4 about a month after resuscitation to show abduction of arm by scapular rotation.

It is interesting to note the fact that respiratory impulse did not return for a long time and that although ample time elapsed and respiratory exchange was sufficient for the disappearance of chloroform narcosis (which was never profound) consciousness never returned. This fact bears out G. W. Crile's statement that ischemia of the higher cerebral centers in dogs which persists more than 10 minutes seldom is followed by recovery of function. Therefore even though it had been possible to continue the resuscitation of this patient it is practically certain that no psychical function ever would have returned.

To recapitulate: 1. Cardiac and respiratory failure due to chloroform and shock.

2. Direct cardiac massage and stimulation combined with artificial respiration failed to resuscitate.

3. Intraventricular adrenalin (after at least 15 minutes of complete cardiac failure) resuscitated cardiac function.

4. Respiration returned after 45 minutes.

CASE 2: Patient undergoing amputation in the hands of one of my colleagues. When first spinal anesthesia had been induced the injection has been made in the usual manner 8 minutes before Anesthesia had resulted, the amputation

Artificial respiration was done, the heart rate continuing to decrease as was noted by palpation of the femoral artery at Poupart's ligament.

The amputation was completed but abandoned without ligation of the vessels or suture of the skin flaps since the case seemed hopeless. During the operation intravenous infusion of normal saline solution had been done and the cannula was in place in the right basilic vein. The heart gradually ceased to beat during which time no respiratory impulse occurred. During a period estimated at

adrenalin solution was washed into the venous system by a flow of saline solution. Vigorous, heavy epigastric massage was done.

The heart at once began to beat, respiration shortly began, and before one had time to realize the fact, the vital mechanism was once more in

the beats were good, the contractions of the heart

bound. He was observed for perhaps 30 seconds, the amputation meanwhile progressing.

It had been before apparent death. The vessels were ligated and the patient returned to his ward where he made a perfect immediate recovery but died three days later of sepsis.

did not complain of any abnormal symptom. At 3 a.m. the following morning the patient awoke, complaining of severe pain in the cardiac region; he was very restless and had some dyspnea and there was irregularity of the pulse. Oxygen inhalations were administered, after which the patient slept for the remainder of the night, the attack having lasted for about 30 minutes. At 8 a.m. he recited his

final respiration was done, traction was made on the tongue and the usual procedures during such

made an uneventful recovery and when seen 6 months later was in normal health and doing

failure

best respiration was done combined with thoracic cardiac massage for a period of about 15

the patient was retained in the hospital later. There was some lack of mentality and confusion for the remainder of the day but the patient

It would seem that the dosage of adrenalin, as used in the first cases, was rather large, and it might be that smaller doses would accomplish the same results, but one can never be sure that a small dose will reach the heart and this appears to be essential to the success of the treatment.

In the fourth case where the adrenalin was

administered directly into the heart, 10 cubic centimeters seems to have been sufficient. In direct administration, however there is always a possibility that the adrenalin will not reach the heart itself but will remain in the heart muscle. Also it generally requires a longer period of time to procure the long spinal needle necessary for intracardiac injection and the adrenalin cannot be washed into the circulatory system with a saline infusion as is possible if it is injected into the vein.

On the other hand when the vein is not already exposed for infusion and when the blood pressure is very low or when no pressure exists it is often difficult to enter the vein and where speed is essential it is quicker to inject directly into the heart. I do not know whether massage is essential to the instigation of the heart beat since it was done at once in all cases without waiting to see if adrenalin alone were sufficient.

The mode of action in this treatment is presumably the same as adrenalin exhibits ordinarily. On reaching the heart auricle or ventricle, a forcible contraction occurs, emptying the auricular content into the ventricle which then contracts (by the adrenalin action) filling the coronary arteries and expelling the ventricular contents into the aorta where the adrenalin again acts, and thus arterial tension is developed. It may be, too that the first auricular contraction regurgitates adrenalinized blood into the great veins contracting them and thus filling the auricle in its diastole.

The cycle having been thus established each subsequent contraction pushes the adrenalinized blood further into the arterial system increasing tension as it progresses and soon reviving the cerebral circulation and the respiratory center. One should make the injection as quickly as possible so as to revive the cerebral circulation since after an ischemia of more than 8 to 10 minutes the higher centers may be permanently destroyed.

Adrenalin (1:1000) a sterile spinal puncture needle and a large glass syringe would be valuable additions to every operating room.

NOTE—Since writing the foregoing—

several of our cases experienced longer intervals of apparent death.

Karl Vogt (3) describes technique for making the injection with an excellent theoretical discussion of the

All of the reports call attention to the fact that a long needle must be employed that heart blood should be aspirated to prove entrance into the heart cavity that speed is very important, and that the massage of the heart should be made in which we concur.

Several authors describe relatively minute dangers and discuss the nodes and bundles of the heart which we consider purely academic in importance and secondary to the all-important act of speedily injecting adrenalin into the heart cavity let it be auricle or ventricle. Probably the left side of the heart is the better site since the pulmonary circulation does not then receive the adrenalinized blood directly.

It seems that the dose should be sufficient to insure the entrance of adrenalin into the heart cavity that 1 cubic centimeter may be sufficient as recommended by Krieger or even only a few drops as recommended by Vogt. It is also worth while to know that 10 cubic centimeters can be used successfully in adults and we suggest a dose of from 1 to 10 cubic centimeters depending upon attendant conditions of time elapsed since cardiac failure, age of patient, size of patient, quality of adrenalin and cause of apparent death. We do not recommend this procedure as a substitute for present resuscitation measures but advise its use only after ordinary means have failed.

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| 37 | |

CASE 3 was that of a young soldier of nineteen

did not complain of any abnormal symptom. At 2 a.m. the following morning the patient awoke, complaining of severe pain in the cardiac region. He was very restless and had some dyspnea and there was irregularity of the pulse. Oxygen inhalations were administered, after which the patient slept for the remainder of the night, the attack having lasted for about 20 minutes. At 8 a.m. he received his

injection into the fourth intercostal space about an inch from the midline close to the sternal margin, thus avoiding the external mammary artery. An ordinary lumbar puncture needle was used. There was immediate response; the heart beat at once and respiration followed very shortly. The anesthetic remained deep enough for the operation to be performed without further administration of chloroform and the patient was returned to his ward 5 minutes later. There was some lack of mentality and confusion for the remainder of the day, but the patient

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several of our cases experienced longer intervals of apparent death.

Erich Vogt (3) describes a technique for making the injection with an excellent theoretical discussion of the

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needle and a large glass syringe would be valuable additions to every operating room.

NOTE.—Since writing the above paper several articles have appeared dealing with the subject, all of which concur in the general principles involved.

Walter Greuel (1) recommends the intracardiac injection and reports 4 cases and states that he has found reports of

FORWARD DISLOCATION OF BOTH BONES OF THE FOREARM AT THE ELBOW

REVIEW OF THE RECORDED CASES AND THE LITERATURE WITH REPORT OF CASE

By ISIDORE COHN, M.D., F.A.C.S., NEW ORLEANS, LOUISIANA
Professor of Clinical Surgery, Tulane University of Louisiana

THE case under discussion is of such rare type, that it seems worthy of report with a complete review of the literature. Since Evers first reported a case in 1787, 22 cases have been recorded in the literature, and the present case brings the total reported to date to 23.

In chronological order, the authors reporting cases may be listed as follows: Evers, 1787; Colson, 1818; Leva d'Auvers, 1841; James Prior, 1844; Moulin de Mora, 1846; Guyot, 1847; Wittlinger, 1848. With the exception of the case of James Prior, the other

the upper arm directly above the olecranon was

The lower extremity of the humerus projected 2

I raised the upper arm as far as possible and extended

1800; Staunton, 1905; and Isidore Cohn, 1922.

Beside these uncomplicated forward dislocations, 7 cases of forward dislocations in association with fractures of the olecranon or

vessels and nerves hanging from the wound, for fear of fresh hemorrhage but left them to detach themselves by sloughation through the subsequent suppuration

and Batut, 1910.

REVIEW OF THE LITERATURE

Since the first report by Evers, the literature on this subject has been full of contradictions and denials. Other reviewers of this subject, notably Streubel, have been unable to gain access to the original report of this case. For this reason, I believe it of value to record a translation from the original. The translation follows:

Observations on an Afterward Complicated Dislocation of the Cubitum with no Break in the Olecranon

1785, July. A seven year old boy with weak muscles fell from a swing at a considerable height on to his right arm, so that the lower extremity of

I tried to keep down the suppuration by the continued use of an emollient and the resisting ulceration but I could not hinder the effect of the great contusion of the under end of the humerus while during the 10 or 12 weeks of the treatment the whole exterior condyle flaked off leaving a perceptible hole without any special effect being observable.

From time to time I permitted the arm to move to prevent much loss and for the extraordinary bone swelling I used a mercurial ointment without terror with very good results.

By this treatment this very interesting injury and likewise the severe bone swelling and the lacerated ligaments tendons, blood vessels, and nerves which prevented the free movement of the elbow joints, was fully healed in the course of not quite 4 months.

But the usual sensation of warmth and the pulse in the injured arm were still feeble and the cold band beat itself inward when left free. I therefore let the blood-filled or collapsed vessels enlarge and the influence of moisture in itself limber the entire arm, by bathing frequently with warm soaps, water and while the boy was bathing he moved the arm and hand more freely and the pulse increased.

By this treatment of warm baths the pulse increased more and more and strength in the same degree as also the feeling of warmth and the free movement of the injured arm so that the patient was completely cured of this remarkable injury in 5 months.

Boyer (1822) stated "We have never seen an anterior dislocation of the elbow com-

that has been seen. As to forward dislocation it can occur only after the olecranon process has been fractured" (Italics mine).

Sir Astley Cooper in 1832 mentions only five species of dislocations of the elbow

and No mention whatever is made of the possibility of a forward dislocation of both bones of the forearm, either with or without a complicating fracture.

Added to this volume was obtained through the courtesy of "The Green Cornet" Library. The illustration was done by Miss Langford.

Monteggia (1825) whose work is referred to by Canton and Streubel, is inclined to believe in the possibility of a forward dislocation without fracture of the olecranon but maintains that it can occur only where there is a considerable pathological relaxation of the ligaments" (Streubel).

Delpech talks of a case of forward dislocation without fracture of the olecranon but we are not informed if he or someone else has seen this case.

He adds in explanation that in this case the soft parts have been so torn and contused that it would be better to overlook this kind of luxation altogether and to consider it as entirely non-existent (Streubel).

Bérard considers "Forward dislocation without fracture of the olecranon inconceivable" and assumes the one with fracture is only theoretically possible but by no means practically demonstrated. (Streubel.)

Richet (1839) quotes from Lauson. The anterior dislocation of the two bones of the

Bérard as follows. As to the anterior dislocation complicated by a fracture of the olecranon it is, I think only from theory that surgeons have been able to describe it, for I have not found one instance in which this accident has been mentioned.

Malgaigne (1823) does not mention the condition at all.

Chelius (quotation from Richet) admits that "the anterior dislocation of the elbow is possible but does not describe it in his chapter on luxations or fractures."

Gross in 1859 stated "Dislocations of both bones of the forearm forward is an extremely rare event which was supposed to be altogether impossible without previous

and all by adducing a number of unequivocal cases in which the displacement existed as a pure, uncomplicated affection. Gross mentions a case of Forbes, of Philadelphia and another of Hunt of Chicago, of which I have not been able to find records.

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the upper arm directly above the olecranon as

apertures, tendons, blood vessels, and nerves. The lower extremity of the humerus projected a good inches from the wound, and by the still active force of the muscles the unbroken olecranon had

1809; Staunton, 1905; and Isidore Cohen, 1911.

Beside these uncomplicated forward dislocations, 7 cases of forward dislocations in association with fractures of the olecranon of

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REVIEW OF THE LITERATURE

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1785 July. A seven year old boy with weak muscles fell from a swing at a considerable height on to his right arm, so that the lowest extremity of

peration.

The wound was bowed up dry, and the necessary compresses were strengthened by a circular bandage. This remained 4 days and as often as it became

increased as it very often is after the operation for false aneurism, but it was more rapid than in a sound person. The much swollen hand was cold

below this lay the head of the radius exteriorly and the coronoid process with its margins on the inside. The forearm was unusually mobile and could be flexed backward and forward and even laterally

of the forearm on the anterior surface of the bone but the olecranon was missing from the posterior fossa of the joint. The articular surface of the humerus with the two condyles, stood on the posterior surface of the bones of the forearm and formed a marked eminence the arm itself was almost extended.

This rather short description shows at least that, as in the case of Morris the olecranon had slipped across the entire surface of the trochlea and was lying with the posterior surface of its base on the highest point of the trochlea. The writer believes that the displacement occurred primarily backward and outward and de sloped secondarily into an anterior dislocation by the olecranon slipping over the external condyle. To reduce the writer followed his views of the mechanism rotating the forearm outward and then pulling it across the external condyle. This procedure he reports to have been quite easy. After reduction, he surrounded the joint with figure-of-eight bandages, and for 6 days applied cold applications of lead water with ammonia. From the seventh day on lukewarm aromatic fomentations were ordered and every day careful movements were made later on liniments of gray ointment volatile liniment, and finally came animal baths (?). Almost complete function was restored except that the arm could not be completely extended. A little swelling had remained over the olecranon and the lateral condyle.

CASE 7 Reported by James Prior in 1844. Chronologically considered, this case should be placed as the fourth recorded case. Collectively it is the seventh case found in the search of the literature. The details of the case as reported by the author are as follows:

A laborer age 34 was winding a weight of some tons by means of a crane when the chain suddenly broke. The handle of the machine was made to revolve violently the reverse way and struck him on the under side of the left arm at the elbow

joint. The heads of the radius and the ulna were driven upward on the humerus. The lower end of the shaft of the humerus was denuded of the muscle and ligamentous attachment. Final result Pa-

tient could swing a sledge hammer weight of 14 pounds."

CASE 8 Reported by Anclon in 1850. Anterior dislocation of the elbow. "A boy 8 years of age while skating on the ice, fell on his left forearm, which was fixed on the arm. Twenty four hours later he was seen by a physician who noted the

the olecranon process cannot be felt at this point. Anclon was called in consultation the following day and as the swelling had subsided he easily

tip rested on the medial aspect of the trochlear process. When the forearm was on the arm to a

There was a small lacerated wound on the dorsum of the hand, there was a fracture of the forearm at its middle third. The two fractures were at the same level. There was a deformity at the elbow and some swelling. A tentative diagnosis of an anterior dislocation of the forearm without a fracture of the olecranon was made. The posterior aspect of the elbow was flattened and the fingers could palpate the olecranon cavity. The edges of the lower extremity of the humerus, especially the

The olecranon was not fractured. All movements of the elbow joint were then normal. The forearm

CASE REPORTS

Streubel (1890) collected all of the reported cases, with the exception of that of James Prior and from this work of Streubel's, I shall

from the literature that surgeons prior to 1890 were not convinced that forward dislocation was even possible, and yet at that time Streubel was able to collect the following six cases

CASE 1: Forward dislocation of the bones of the

arm a depression, the fossa olecranon. The movements of the arm were very restricted and extremely painful

Leva reduced it by letting one assistant make counter extension at the shoulder while a second extended the forearm. He then pushed the ulna forcibly backward, while he pulled the end of the humerus forward. Reduction occurred after a short time with an audible snap. Leva has forgotten to mention if the arm became partly or entirely useful again

CASE 4: Reported by Monin de Mormant offers

pushed obliquely forward and downward by the

the hand

In this case, the olecranon stood not upon the trochlea, but lay in front and partly over it. The

the arm was slightly flexed

times to restore the dislocated arm by repeated

soon met and the injured boy suffered great pain. Each movement caused the point of the olecranon to move about on the trochlea. The radius had moved to the ulna. Reduction was

the joint, the arm was lightly flexed. The covering the joint were under high tension. The

and flexors. The biceps and brachialis anticus were

the biceps and
tissues were infiltrated

to be unusually marked

"It was evident that there was a complete anterior dislocation at the elbow joint. No evidence of fracture was present, either before or after reduc-

1866 Hutchinson states the case was observed by one of his friends, and late pupils, Mr E. Greenaway. There is very little detail given. The following was abstracted from his report.

"Mr Greenaway informs me that the symptoms were very definite: the forearm lengthened, the condyles of the humerus prominent below and behind the olecranon, the projection of the latter bone being quite lost. On bending the limb, the

forearm

"The radius and ulna then traced in succession and occupied the position of outward and back

The following, abstracted from Feilston's article, gives

was sustained by one arm when the luxation occurred. There was no fracture of the olecranon. The end of the humerus formed a large prominence, posteriorly causing a marked and sufficient characteristic deformity. The radius and ulna were completely displaced upward on the anterior surface of the humerus.

CASE 14. Reported by J. E. Platt, in 1899. The case was under the care of Mr Ray, resident surgical officer at the Manchester Royal Infirmary, to whom I am indebted for the following details.

Complete dislocation forward of upper ends of

accident. The after-progress of the case was uneventful, and when the patient was last seen, about 3½ weeks after the occurrence of the accident, there was scarcely any impairment of the full movements of the elbow joint."

CASE 15. Reported by Staunton in 1905. "The best left striking point of elbow. It could be

and forearm, and the patient supported his right hand in the palm of the left. Great pain followed the accident. He was attended within 30 minutes of the accident by physicians, who gave him an anesthetic and "immobilised the fracture" in plaster for 10 to 14 days. The pain persisted, and the bandage became very tight, causing the fingers to swell. Again the arm was manipulated and a cast resplashed. Four weeks after the accident, the

with the patient found that the arm was still more and upon the injured limb. He was removed at once to the Infirmary and was seen by Mr Ray within 30 minutes of the occurrence of the accident. The elbow was flexed to a right angle and was fixed

There was marked oedema and swelling of right arm, forearm, and hand. The elbow was flexed to a right angle and the patient supported the forearm in the palm of the unjured hand. The circumfer-

and there was no more pain.

seemed to be momentarily threatened. The antero-posterior and lateral diameters of the joint were

elbow shortening of the arm lengthening of the forearm.

muscles were elevated the forearm was held in a wind-blown position. The olecranon process was

depression favoring the view that the ulna was broken immediately below its olecranon process. No needless gaiter with lateral elevations to bound

flexion was being made at the wrist and counter extension at the elbow. I tried to force the ulna backward, but even though considerable traction was made the reduction was not accomplished. The forearm was then flexed to a right angle and while traction was made on the forearm and counter traction on the arm, the forearm was gradually

regained its normal movements.

CASE 11. Reported by Canton in 1860. A case of dislocation of the ulna forward, at the elbow without fracture of the olecranon process. The

elbow was made under my superintendence by my pupil, Mr. Edgar Browne, with the following results.

The radius was exposed and maintained in situ.

swollen, and the power of moving it entirely lost.

brevis, and anconæus, were detached from the

and flexion. The biceps and brachialis anticus were

being tightly stretched over the bone. The tendon was lodged in the groove of the trochlea. On the front of the upper part of the forearm, the head of the radius and the upper end of the ulna were made out without difficulty. Pain did not appear

issues were infiltrated

1866 HUTCHINSON stated that the case was first observed by one of his friends, and later pupils, M. F. Green.

the condyles of the humerus prominent below and behind the olecranon, the projection of the latter bone being quite lost. On bending the limb the

flexion of the elbow to free the olecranon, extension was carried out in the line of the humerus and with pressure of the knee against the upper part of the forearm.

The radius and ulna then traced in succession and occupied the position of outward, and back reduction, backward, they had

CASE 15. Reported by Staunton in 1905. "1 1/2 tent fell, striking point of elbow. It could be

was sustained by one arm when the luxation occurred. There

completely displaced upward on the anterior surface of the humerus."

CASE 14. Reported by J. E. Platt, in 1899.

for which he came under observation. Forearm was caught in a governor belt and dragged across the

plaster for 10 to 14 days. The

minutes of the occurrence of the accident. The elbow was flexed to a right angle and was fixed

I first saw him



Fig. 1. Anterior dislocation of elbow before reduction. Case of Mr. P.

ence of the right arm was 35 centimeters, the left arm, 33½ centimeters, right wrist, 20 centimeters and the left wrist 17½ centimeters.

The right elbow, when viewed from the side, is broad, and there is a marked prominence 2 inches below the external condyle posteriorly. The

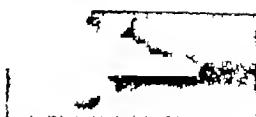


Fig. 2. Anterior dislocation of elbow before reduction. Case of Mr. F.

separatrix was then retracted outward and the humerus approached subperiosteally between the supinator longus and the brachialis anticus. The vessels, along with the muscles and periosteum, were retracted upward. We found that the head of the radius was above the normal level and anterior

was anterior to the internal condyle and rotated outward. We then saw that there was a mass of

SLIM. Side A. By pulling lateral armature up, the
a complete anterior dislocation of the elbow the

the elbow.

middle arm

Incision was made on the outer side of the humerus, beginning about the junction of the middle and lower third, extending down the forearm about 4 inches. The radial nerve was exposed before its entry into the supinator longus muscle. The

with worm and Michel clips. No large vessels
injured and a tourniquet was not needed.

The arm was put up in complete extension, be-

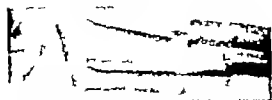


Fig. 3. Fracture of both bones of forearm associated with anterior dislocation of elbow. Case of Mr. P.

Both bones of the forearm at this time as we felt

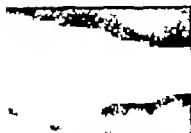


Fig. 4. Anterior dislocation of elbow after reduction. Case of Mr. P.

March 15. When last seen in office January 15, 1922, he could flex elbow beyond a right angle and extend the arm to 160°. There was union of the fractures of the forearm. There was greater freedom of motion of the wrist.

FORWARD DISLOCATION OF BOTH BONES OF THE FOREARM COMPLICATED BY A FRACTURE OF THE OLECRANON

1. The first recorded case of a forward dislocation of both bones of the forearm, complicated by a fracture of the olecranon, was reported by Richet from the clinic of Phillips Boyer, St. Louis Hospital, Paris. This case has been reported in detail, in the work of Streubel and the following abstracted from that classic review gives the interesting phases of this first case.

A patient was seen on

expiration
n 6 p.m.
n 6 p.m.

External

dressing changed

December 14, 1921. Dressing changed. Two

about 60 to 65 without any pain. Temperature 99°. Patient seems in good condition. Sutures and clamps removed. Passive motion.

December 17, 1921. Dressing. Large amount of synovial fluid and blood discharged when elbow is flexed.

December 19, 1921. Dressing changed. Serous discharge from joint. Wound looking well. Slight edema and redness about joint. Motion about 60 to 90°.

December 21, 1921. Wound dressed. Serous sanguinous discharge. Passive motion.



Fig. 5. Same case after reduction.



Fig. 1. Anterior dislocation of elbow before reduction.
Case of Mr. P.

broad, and there is a marked prominence such below the external condyle posteriorly. The anteroposterior diameter of the elbow is greatly increased. Palpation of the arm shows the swelling to be of a brawny hardness in places, and soft

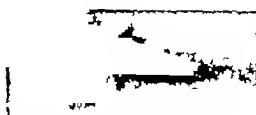


Fig. 2. Anterior dislocation of elbow before reduction.
Case of Mr. P.

supinator was then retracted outward and the humerus approached subperiosteally between the supinator longus and the brachialis anticus. The vessels, along with the muscles and periosteum,

outward 1/2 inch and the humerus

the internal condyle were interposed between the humerus and the forearm. A effort was

the elbow

1/2 inch and the humerus

with worm and Michel clips. No effort was

muscle thru
incision was made on the outer side of the humerus

1/2

process The report as abstracted from the original, follows

On September 14, 1858, a young man of 38 was

complete It was easily reduced but the dislocation recurred immediately

In view of such a severe injury I wanted to

cauity

The active movements of the forearm were absent, but all the passive movements, especially extension and flexion, were practically normal all were painful. The pulse in both arms was normal, thus

arm very well

The next recorded case, is that of M. Rigaud reported in 1870.

On the 30th, two collections of pus having been found on the lower external portion of the arm, and on the superior inner aspect of the forearm, two incisions were made to evacuate the pus. The index

process

In 1877 Alons recorded forward dislocation of the ulna with a lateral displacement of the radius. The case report as abstracted from the original article follows

On the evening of July 6 1876 a soldier of a German Infantry Regiment, named Fowler was admitted to the military hospital with an injury to the left elbow joint. The history was given as follows

"During jumping exercises over a box, the man had taken a good start, but had suddenly become afraid to venture the jump, when he had arrived close to the box. Having taken such a strong running start,

luxation, complicated by a fracture of the olecranon. At the end of the index finger a hard, movable mass was felt on the anterior aspect of the ulna. On a second exploration the following day it was found that the forearm was not dislocated

and twelve-fourths hour after the injury the follow-

it was found extending upward to the lower third of the arm and downward to the upper third of the forearm. The coronoid process was fractured transversely, and was completely rotated. The muscles attached to the internal condyle were barely recognizable having been destroyed by the external violence and suppuration. The muscles attached to the external condyle were

On manual examination the posterior fossa is found completely empty, but on the flexor side 3 centimeters above the bend of the elbow the olecranon can be plainly felt wedged with its tuberosity into the fossa anterior major. Over and alongside the external condyle a bony eminence is felt and through the tightly stretched skin, the plate-like upper articular surface of the radius is plainly palpable. Without a doubt we had to deal with a forward luxation of the ulna, without fracture of

deep in the tissue and lifted the art. pt. and the

surface of the ulnar fragment was corrugated and touched the articular end of the humerus, which through friction of this fragment, had suffered a superficial loss of cartilage. The joint capsule was almost entirely torn, which accounts for the mobility of the parts, the facility of reduction and also the relapse. Streubel also mentions the pathological specimen of Dupuytren, but as you will note by the quotation, no data is given concerning where the specimen was obtained and therefore cannot be

ing this

muscle, while the external lateral ligament was almost intact. The brachialis externus was the muscle which had suffered most; its superficial part was contracted, its deeper fibers entirely torn. The soft parts behind the joint showed the above-

arm

There is no proof that this is not the same case as mentioned by Streubel. The only thing which sug-

parently one, not two.

Case 3. Reported by Morel Lavallée in 1851. This case is unusual, because it seems to be the first recorded case of an anterior dislocation of the forearm complicated by a fracture of the coronoid

add in regard to methods by which this deformity can be produced, as all of the cases which have been reported have resulted from one of the three mentioned possibilities.

The pathology in all cases is one of extensive laceration of the ligaments about the joints, and extensive injury to the muscles or stripping up of the muscles from their bony attachment. These points can be readily verified by referring to the individual case reports.

The results which have been obtained in the uncomplicated cases are not stated in six, and are given as "cured or almost complete usefulness," in seven. There was an amputation in one case. In the cases complicated by fracture of the olecranon or coronoid there were three amputations, two cured and one improved. From the foregoing, it would seem that the prognosis should be good provided the patient is seen early enough, and the injuries to the soft parts not sufficient to call for an amputation. When seen late, as in the author's case, operative reduction offers the only possible method of obtaining a useful elbow. Furthermore, where there is so extensive a stripping up of the muscle from the bones as was illustrated in the author's case, where there was an interposition of soft parts between the respective joint surfaces, there is no possibility of reducing the deformity except by an open operation.

CONCLUSIONS

Anterior dislocations of both bones of the forearm are rare. Only twenty three cases, including the case herewith reported have been found in a review of the literature. In all cases which have been verified by operation or autopsy there has been an extensive laceration of the ligaments about the joint and

soft parts between the lower end of the humerus and the ulna. Such a condition shows the impossibility of a non-operative reduction, particularly if seen late, as in this case.

The approach to the elbow in such instances had best be done by lateral incisions rather than the linear posterior incision or the method recently suggested by MacAusland. The position after operation had best be one of complete extension, because the olecranon in complete extension is fixed in the olecranon fossa behind the trochlea. If the elbow is put in hyperflexion there is a tendency of the olecranon to slip forward again and reproduce deformity. After a few days it is advisable to begin mobilization of the joint.

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either uncomplicated or associated with a fracture of the olecranon or coronoid process. A review of the literature suggests that some of the cases have been reduced with very little difficulty.

The case which forms the basis of this report showed that there was an extensive stripping up of muscles and interposition of

— — — — — V — — —

the olecranon for in that case it would have remained in the posterior form and an external

of both bones of the forearm, associated with a fracture of the olecranon. He doesn't give the details regarding the case.

minor

found the patient to be put to rest in the

radial, cubital, posterior, capsular, anastomotic and

flexion and extension were less painful. August 3, regular passive motions were commenced which had to be interrupted again on August 13 on account of returning swelling. After applying a few leeches, this disappeared again within 3 days. On August 25, the mobility of the joint was almost normal and pain less and on September 4, the patient could be discharged from the hospital as

period of 6 to 7 months. Six years later the case was seen by the author who found that flexion of the forearm was normal, but extension was limited to about 130 degrees. The right forearm was 3 centimeters shorter than the left. The anteroposterior diameter was increased. The ulna was normal. No trophic disturbances were noted. Even though extension was limited to 30 degrees, the author decided not to operate. He advocated active and passive exercise massage and contrast baths as a means of increasing the mobility of the elbow joint.

ETIOLOGY — MECHANISM OF DISLOCATION AND PATHOLOGY

In reviewing the literature, it is found that by far the greatest number of cases of uncomplicated forward dislocation of the elbow have resulted from a blow on the flexed elbow. One case occurred following the forearm being caught in a fly wheel (Caussion). One case resulted from the handle of an unwinding chain striking the patient on the under sur-

Colson and Hugue, after studying their case and making experiments on the cadaver reported the following results:

"Forward dislocations without fracture of the olecranon may occur in three ways: first by forced flexion of the forearm; second by fixing the upper arm and turning the forearm around the axis of the forearm; third by hyperextension of the forearm."

Though this work was done nearly one hundred years ago, there seems to be little to

add in regard to methods by which this deformity can be produced as all of the cases which have been reported have resulted from one of the three mentioned possibilities.

The pathology in all cases is one of extensive laceration of the ligaments about the joints, and extensive injury to the muscles

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SUBASTRAGALOID DISLOCATION OF THE FOOT

By BEVERIDGE H. MOORE, M.D. CHICAGO

SUBASTRAGALOID dislocation of the foot in which the os calcis and the scaphoid bone are displaced from the astragalus, while the astragalus retains its normal relation with the tibia and fibula, is a rare injury.

Sir Astley Cooper in his book *Fractures and Dislocations*, describes two cases which he saw and reduced in 1815. He considered

OCCURRENCE

It is a rare injury. Trendelenburg states that in his clinic only one case was seen in 10 years. However, Simon says that in a nine-year period at the Hudson Street Hospital, there were five subastragaloid dislocations, five total dislocations of the astragalus, and five dislocations of the entire foot from the tibia. During the same period there were 1039 adduction and abduction fractures of the

astragalus, he conformed to the standard nomenclature of dislocations. In his classification he recognized three varieties, naming them, outward, inward, and backward.

Malgaigne later added a fourth variety, dislocation forward. He reversed Broca's

in the
some
that

this region

As to the relative frequency of the varieties of subastragaloid dislocation, of 85 cases collected by Baumgartner and Huguier 48 were inward 26 outward 7 backward and 4 forward.

CAUSES

The same causes act to produce fracture of the malleoli, dislocation of the

The German writers usually name varieties as, abduction, adduction, and sagittal subastragaloid dislocation of the foot. This has the advantage of giving a clearer mental picture of the deformity.

The latest complete reviews of the literature are by Dietz in German (1906) and by Baumgartner and Huguier in French (1907).

The three cases reported here were all of the outward variety. One was recent and the others of long standing.

CASE 1. W. A. male age 50 a painter entered Cook County Hospital August 22, 1921. A few



Fig. 1. Case 1. Lateral view before and after reduction.

third of the distance to the knee. The foot was moderately everted and abducted. Palpation was difficult on account of the swelling, but a bony projection could be made out on the inner side of

entered Cook County Hospital August 29, 1921. His complaint was pain in the right foot after use, lameness and deformity of the foot. The foot was injured 15 years before. At that time he was work-

He also complained of numbness of the great toe. The tentative diagnosis was, fracture of the lower end of the fibula with dislocation of the foot outward.

The X-ray showed outward and slightly backward dislocation of the os calcis and scaphoid from the astragalus, with slight comminution of the lower portion of the anterior end of the os calcis. There was also a fracture of the fibula about 1 inch above its tip.

Closed reduction under ether anesthesia was accomplished as follows. The knee was flexed to relax the gastrocnemius. An assistant grasped the forefoot while the operator held the heel and ankle with both hands. Traction was then made on the forefoot and an attempt made to invert it. At the same time pressure was made outward on the internal malleolus and forward on the heel. After

turned outward. An attempt was made to correct the deformity and a splint was applied. He was kept in bed for a month after which he began to walk, though it was very painful. After the swelling subsided the foot was still turned outward and there was a large "lump" on the inner side of the foot just in front of the ankle. This gradually became more prominent and the foot became more flattened and turned out as he used it. With specially made shoes he had been able to continue working at odd jobs, though he limped badly and walking was very tiresome.

elastic strapping was used for 3 weeks longer.

Lateral view.

CASE 2. C. L. male age 50 a hotel porter

On weight-bearing the eversion was increased so that the projection on the inner side of the foot almost touched the floor. On walking the whole leg was voluntarily rotated outward so that the foot was almost at a right angle to the direction of progress.

the astragalus was in normal relation to the tibia, but the lower border could not be made out clearly and the whole bone appeared to have sunk down.



Fig. 2. Case 2. Foot before (left) and after (right) astraglectomy.

ward in relation to the scaphoid and on calcus. The

arthritic change in the joints of the tarsus. Operative removal of a portion of the astragalus to correct the faulty weight-bearing was advised. A small



Fig. 3. Case 3. Roentgenograms of foot showing dislocation.

The cartilage covering the head of the bone had

begun

Three months after the operation the patient

there was much more spring from the foot. At

He was then working as a hotel clerk

and abducted and the sole much flattened. There is a moderate projection of the head of the astragalus on the inner side of the foot. Both the external and internal malleoli are lowered, are
 surface
 Dorsal
 normal
 Motion

at the midtarsal joint is slight. The patient walks with the foot pronated and abducted and there is a slight limp. Since the foot was functioning so satisfactorily to the patient no operative treatment was advised.

X-ray findings. The lateral view shows marked flattening of the longitudinal arch with lowering of



Fig. 4. Case 3. Roentgenograms showing partial dislocation of head of astragalus and complete dislocation of os calcis.

tion of the os calcis. The anteroposterior view of the ankle shows the os calcis at almost the same level as the astragalus and to its outer side. The astragalus is in normal relation to the tibia.

In all three of these patients the same primary cause was active that is a violent wrenching of the foot outward by a force applied from above. In all of them the foot was probably at nearly a right angle to the leg at the moment of injury. This bears out the experimental work of Baumgartner and Hugnier on the cadaver. They found that the dislocation could be produced only by pure abduction of the foot that is with the foot at right angles to the leg. They also found that it was necessary to cut the interosseous ligament between the os calcis and astragalus before the lesion could be produced experimentally. If this was not done fracture of the malleoli resulted.

In the second case the position of the foot at the time of injury was known with reasonable exactness. In the squatting position the foot is at a right angle or less with the leg and is either slightly everted or inverted depending on whether the weight is borne more on the inner or outer side of the foot. A heavy weight striking the thigh will cause a backward and downward thrust of the tibia which will cause dorsiflexion of the foot. In this patient it resulted in a subastragaloid dislocation of the foot outward. It is interesting to note that Stimson describes a case in which injury was produced in almost identical fashion yet in his case it was a Pott's fracture which resulted.

In the third case the foot was also probably at very nearly a right angle at the time of injury. I have seen recently a case in which

the mode of injury was very similar that is a blow by a heavy weight falling on the outer side of the ankle while the patient was in the sitting position, in which a fracture of the lower end of the fibula and a crushed fracture of the astragalus were the result.

It seems fair to say that there is no cause which will constantly produce subastragaloid dislocation but that it is an alternative injury with abduction and adduction fractures in the region of the ankle joint.

The reason for the great preponderance of fractures over dislocations in this region is to be found in the structure of the joints. They are formed by such powerful ligaments that it is easier to produce fracture of the bones than the ligamentous tear necessary for dislocation. Both of the old cases reported give a history of increase of the deformity after weight bearing was begun. When we consider that, in order to produce a subastragaloid dislocation outward the interosseous ligament between the astragalus and os calcis the astragalo-calcaneal ligament, and a portion of the deltoid ligament must be torn, thus depriving the posterior portion of the foot of its most important support, this seems a necessary consequence. In addition to the loss of support the weight-bearing line is shifted outward and this increases the need for support.

In this connection the X-ray findings are of interest. In Case 1 which was recent there is a marked dislocation of the head of the astragalus from the scaphoid and a separation of the os calcis and astragalus with comparatively little dislocation between them. In the two long-standing cases the astragalus has

sunk markedly downward as the result of weight-bearing. The other points of interest in the X-rays are the relations of the axes of the astragalus and os calcis. In all the cases the longitudinal axes cross instead of being practically parallel as is normal. In the first and third cases this crossing is at an acute angle, about 20 degrees, while in the second it is at a much greater angle, about 50 degrees.

The two old cases also show a slight separation of the scaphoid from the cuboid and cuneiform bones, though not enough to be an actual dislocation. Quénu noted this finding in a case report in 1918. It is probably a constant finding. Most of the cases in the literature were reported before the X-ray came into use so that minor associated injuries would easily escape notice.

Both of these cases also show marked arthritic changes especially in the joints involved in the dislocation. These changes may depend in part on injury to the periosteum at the time of the original injury.

TREATMENT

Primary reduction is most desirable and gives excellent results. The method of reduction depends on the variety of the dislocation and utilizes the underlying principle of the reversal of the force causing the dislocation.

Irreducibility is not infrequently a complication mentioned in the case reports in the literature. The causes given are (1) Interposition of a portion of the annular ligament between the scaphoid and the head of the astragalus. (2) Engagement of the neck of the astragalus by the tendon of the anterior tibialis muscle or in extreme cases by the tendon of the posterior tibialis. Quénu lays stress on the first cause, while Baumgartner and Huguier emphasize the second. Either condition would call for open reduction.

For old dislocations, astragalectomy is the

method of choice. Quénu advocates it for all over 9 days old. This seems rather radical as the first case reported was not reduced until 2 weeks after the injury and yet no great difficulty was encountered and the result was good. One case is reported in the literature in which closed reduction was accomplished 6 months after the injury. This was in the pre-antiseptic period and at the present time probably would have been operated on.

Baumgartner and Huguier collected the results of 23 astragalectomies for old irreducible and compound subastragaloid dislocations. Of these 13 gave good function, 6 resulted in ankylosis, 1 required secondary amputation, and 2 resulted in death from sepsis. These cases included those operated on in the pre-antiseptic period. Since their report, Thilenius and Quénu have each reported an old case treated by astragalectomy with excellent results.

SUMMARY

Subastragaloid dislocation of the foot is a rare injury alternative with abduction and adduction fractures in the region of the ankle.

The physical signs of subastragaloid dislocation

old cases there is lowering of the malleolus and thickening of the foot below the malleolus.

Treatment in recent cases is reduction, either open or closed as may be indicated. Total astragalectomy gives good results in old cases.

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DEPARTMENT OF TECHNIQUE

FRACTURES OF BOTH BONES OF THE FOREARM WITH GREAT DISLOCATION TREATED WITH PIN TRACTION

By DR. R. A. KOOPMAN, ROTTERDAM, HOLLAND
Assistant Surgeon, Gemeentelijk Ziekenhuis van den Oeverlanden

THE conservative treatment of fractures of bones of the forearm when the fragments are in bad position usually gives unsatisfactory results. To obtain a correct anatomical result and especially to restore function, it is of great importance in these cases more than in fractures of other bones that the fractured bones be brought into good position. Even when a good position of the fragments is obtained, the end-result may be disappointing because of excessive callus formation or because the fragments do not unite.

The closed method of reducing a fracture even with the patient under general anesthesia is

always reduce the dislocation. Stemmann, Wilms, and Schmers recommended direct traction on the broken bones to obtain reduction. But these methods do not give satisfactory results and

many surgeons have decided that open reduction is the best method of treating fractures of the

It seemed advisable therefore, to seek a more simple method of treatment and we wish to recommend the technique described below—a distinct traction dressing with pin extension as recommended by professor Dr. W. Noordenbos.

Two pointed steel pins are used. One, approximately 17 centimeters long and 2 millimeters thick, is introduced just above the radio-ulnar joint through the ulna and then through the larger radius; the other pin of the same diameter but shorter is inserted just below the olecranon through the ulna only. The pins are best introduced under general anesthesia and if aseptic precautions be taken there need be no danger of infection. Traction in opposite directions is exerted on each pin.

The patient is put to bed and the forearm is held suspended vertically by means of two metal



Fig. 1. Case 1. a and b show active mobilization of the joints.

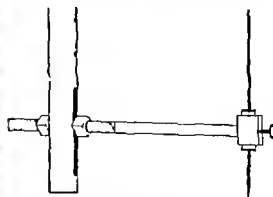


Fig. 2. Diagrammatic sketch of pin and handle frame used by author in pin-traction apparatus.

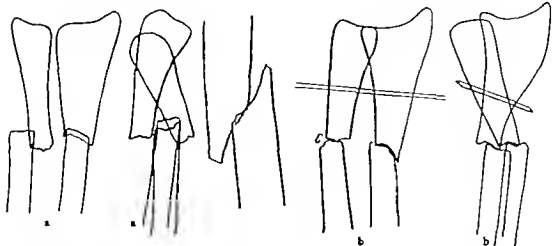


Fig. 4c



Fig. 5

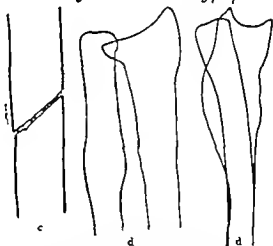


Fig. 4. Case 1 K K. First day a day d and years and month after operation

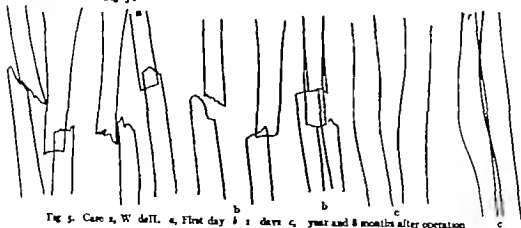


Fig. 5. Case 2, W deH. a, First day b 1 day c, year and 8 months after operation

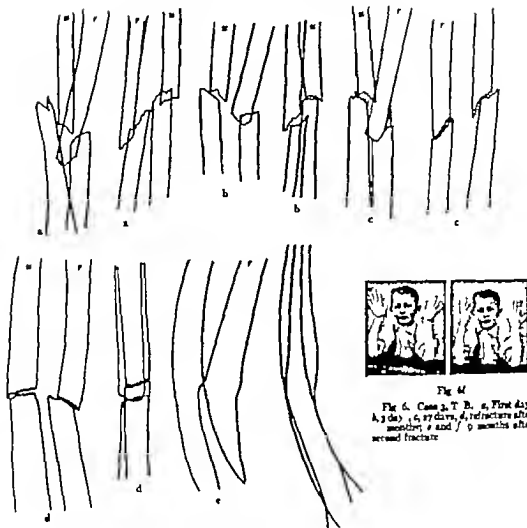


Fig. 6.

FIG. 6. Case 3, T. B. a, First day
b, 43 days; c, 27 days; d, refracture after
months; e and f, 10 months after
second fracture

... to converge in vertical direction. When

b, c, d, e)

March 2, 1930. The position of the fragments was very

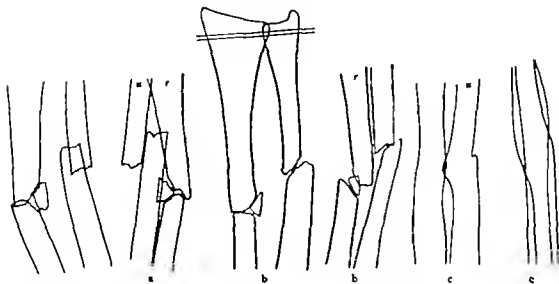


Fig. 7. Case 4, K. v. K. a, First day b 5 days, the pin perforating the radio-ulnar joint, c and d 1 year 7 months



Fig. 7d



Fig. 7e



Fig. 8. Case 5, G. de L. a, First day b 1 day, c, 24 days, d and e 1 month

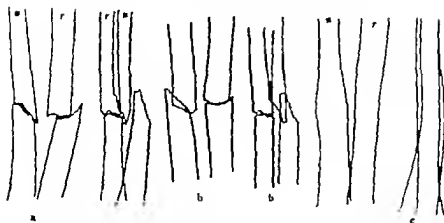


Fig. 9. Case 6 A II. a, 9 days after fracture; one day after second attempt at reduction; b, 34 days after fracture; c and d, 4 months after fracture.



Fig. 10.



Fig. 10.

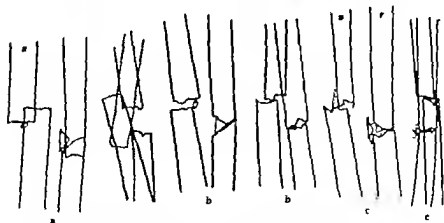


Fig. 10. Case 7 II R. a, First day; b, 8 days; c, 40 days, consolidation; d, 3 months.

cells afterward the fragments are grown together. February 26 the pin-external apparatus was applied.

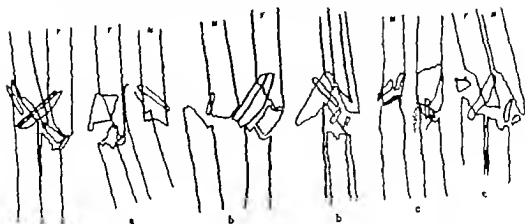


FIG. 11. Case 2, S. de J. a First day; b, 24 days; c, 48 days; d, 3 1/2 months.



Fig. 11d

CASE 6. A. H. a boy, age 11, broke his right forearm September 6, 1917. Two efforts to reduce the fracture

CONCLUSIONS

1. In complicated fractures of the forearm, the pin-extension method is to be preferred above other methods of treatment, because dressing of the wound is not impeded.

2. In fractures of the forearm, with overriding of the fragments, this method of treatment deserves commendation, as the results obtained are good in using this method an operative reduction can be avoided.

CASE 2. S. de J. bornsma, age 10, fell down stairs November 1, 9, and sustained complicated compound

NEW TRACTION AND SUSPENSION BONE TONGS

By EMIL J. HUGLUND M.D., CHICAGO

IN non-operable fractures, various types of traction tongs have been used successfully in bringing the fractured bones in good position. However these instruments have not always brought about the desired result in fact



Fig. 1

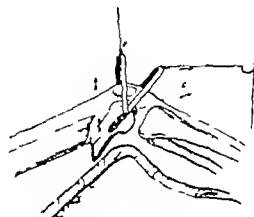


Fig. 2

they have sometimes been the means of producing great deformity and shortening. Lack of

other fragment. The desired alignment can be secured more easily and positively by means of the suspension and traction tongs with the four screws it is possible to secure the proper amount of leverage.

Figure 1 is a photograph of the tong and Figure 2 is a schematic drawing showing their application in a case of fracture of the femur. The traction tongs with rope to pulley on rod *b* should be set so as to produce sufficient leverage to bring the bones in line, *c*. The suspension tongs with rope *d* are placed in a perpendicular position to act as a pivot. The limb is usually placed in a double incline splint. The screws as shown in Figure 3 are one half the diameter of the traction screws and are so constructed that they can be pushed through the soft tissues, enabling the operator to feel for the shaft of the bone. When the bone is located the thumb screw is screwed up into the frame of the tongs and the long screws tightened. The modification of the second screws as shown in Figure 3 is not clearly shown in Figure 2.

lower end of the femur. In such cases we always find more or less contraction of the muscles



Fig. 3

PELVIC MEASUREMENTS BY X-RAY¹

By ALFRED BAKER SPALDING, M.D. SAN FRANCISCO, CALIFORNIA

From the Department of Obstetrics and Gynecology and the Department of Roentgenology, Stanford University School of Medicine

IN 1921 Chamberlain and Newell published in detail a method of pelvimetry by means of roentgen-ray which they had developed in the department of roentgenology at Stanford

in centimeters of each end of the conjugate above the plane of the film. The length of the conjugate is then computed from the formula

$$X = \sqrt{Y^2 + (A - B)^2}$$

It is not necessary for the understanding of

The distinctive points in the new technique consist first, in the use of a plumb-bob hanging from a lead ring under the target which is set 80 centimeters above the plane of the film second, a wire stretched across under the patient

Newell.

To correct for errors due either to a shifting of the patient or to a wrongly made scale one can measure the 10 centimeter rod placed on the patient. If this gives accurate measurement, then the various diameters of the pelvis will be

to the wire above mentioned, and another film is exposed. When dry the films are placed in the stereoscope and the desired points to be measured are marked with a small ink dot. Then, on the

pelvis which are to be measured labeling each pair. The celluloid is then laid over the other film, setting the diaphs over the shadow of the wire, and the mark for the plumb-bob placed

Now a line connecting the two points marking the sacrum is labeled A and the line connecting the two points marking the point of



Fig. The patient is placed on a Potter Bucky diaphragm and the plumb-bob is adjusted vertically below the target.

TABLE I—Summary of fourteen patients measured by roentgenologist

| | Type of Labor | Pelvic Measurements | | | | | | | | Roentgen Ray | | | | | | | | | | Remarks |
|----|-----------------------------|---------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------------------------|
| | | SP | CK | T | LO | FC | EO | BI | PS | Inlet | | | Ramus | | Outlet | | | | | |
| 1 | Breech Term | 26 ¹ | 26 | 31 | 22 ¹ | 20 | 11 | 8 | | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | |
| 2 | Spontaneous Term | 26 ¹ | 26 | 31 | 2 | 21 | 2 | | | 12 ¹ | 14 | 12 ¹ | 12 ¹ | 12 ¹ | | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Indurated |
| 3 | Spontaneous Term | 26 | 26 | 31 | 1 | 21 | 2 ¹ | 7 | 8 | 12 | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | | 12 ¹ | 12 ¹ | 12 ¹ | Classical diagnosis, breech pelvis |
| 4 | Transverse Version | 26 | 2 | 31 | 2 | 20 | 3 | 20 | | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Foetal path is |
| 5 | Breech Term | 24 | 22 | 31 | 24 | 20 | 11 | 7 | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Classical diagnosis, breech pelvis |
| 6 | Breech Term | 26 | 25 | 22 ¹ | 24 | 19 ¹ | 12 | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Classical diagnosis, breech pelvis |
| 7 | Breech Term | 22 | 20 ¹ | 22 ¹ | 2 | 19 ¹ | 11 | 20 | | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | |
| 8 | Mild Forceps Term | 22 | 24 | 7 | | 21 | | 6 | 20 | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Classical diagnosis, breech pelvis |
| 9 | Right Mid Forceps Term | 22 | 20 ¹ | 26 | 21 | 20 ¹ | 12 ¹ | 7 | | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Classical diagnosis, breech pelvis |
| 10 | Spontaneous Term | 22 ¹ | 26 | 15 | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 8 | | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | |
| | Low Forceps Term | 12 ¹ | 26 | 12 ¹ | 21 | 21 | 1 | 2 | 9 | 12 ¹ | 11 | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Classical diagnosis, breech pelvis |
| | Forceps Ectopic | 22 | 26 | 2 | 24 | 20 | 2 | 2 | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Classical diagnosis, breech pelvis |
| 11 | Cesarean after Breech Labor | 20 ¹ | 22 | 2 | | 2 | 21 | | 2 | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Rachitic flat D.G. 10 and T.C. 8 |
| 12 | Cesarean only | 2 | 22 | 21 | | 2 | | 2 | | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | 12 ¹ | Size pelvis 10 at T.C. 10 |

| | 15 | 10 | 25 | 10 | 10 | 10 | 10 | 10 | 10 |
|-------|----|----|----|----|----|----|----|----|----|
| X-ray | 10 | | 25 | 20 | 2 | 10 | 10 | 10 | 10 |
| X-ray | 10 | 10 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |

measure of routine, but we have found it very

the pelvis, and in two instances has been an
deciding factor in inducing labor rather than

measurements, but with greater emphasis on
— while a correct that with

accurate, providing the dots have been accurately
placed on the plates. This is the one point in the
traction.

In a marked obliquely contracted pelvis the impression given by external measurements was entirely changed by the accurate measurements for both oblique diameters which were found to be nearly equal.

An additional practical point that we have observed in the use of the X-ray measurements during the progress of a delayed labor is the accurate diagnosing of the position of the presenting part which is shown by the X-ray photograph.

It is more difficult for the roentgenologist to place the points accurately for external measurements because of the shadows of the iliac bones, but the method has great teaching value in correlating the various methods of external pelvimetry used by different members of the staff. This has been tested in a very interesting contest where the entire staff including the attending obstetricians, senior house staff, junior house staff and students have entered into a competition with the X-ray department. In this contest not only was the fact brought out that certain of the pelvimeters in regular use gave erroneous measurements but also that different methods for measuring the pelvis showed quite varying degrees of accuracy (see Table II).

Not only did the measurements made by the clinical staff vary but also there was a considerable variation in the two measurements made by different roentgenologists. At first glance this might seem to throw doubt on the value of the X-ray measurements, but after considerable discussion in staff meeting, it was found on the side of the clinicians that not only were some of the

instruments used defective, but also there was not a unanimity of opinion as to the exact points from which the different measurements should be taken. This was particularly noticeable in the outlet measurements of the pelvis. Because of the size of the tuberosity of the ischium, different measurements will be obtained if the bis ischial is measured from the anterior edge, the middle portion or the posterior edge, of the tuberosity. However it will be noted in the chart that where short bis ischial measurements are made the same individual usually measured a long posterior sagittal. The measurements made by different roentgenologists are due not to errors in the method of measurement but to errors in the points from which the measurements are taken.

He is also a trained obstetrician, is not capable of expressing to patients the prognosis of labor based upon X-ray measurements. So many factors must be considered in regard to prognosis such as pelvic inclination, presentation and position, mechanism of labor etc. that the obstetrician must rely on his training and past experience in this important matter and can utilize X-ray measurements only as one factor to aid him in arriving at his decision. It is not sufficient for the obstetrician to read merely the written report from the roentgenologist but he must study with the roentgenologist the stereoscopic pictures of the pelvis and satisfy himself that the points from which the measurements are taken are the points which in his judgment are essential.

TABLE I—Summary of fourteen patients measured by roentgenologist

| | Type of Labor | Pelvicimeter | | | | | | | | Roentgen Ray | | | | | | | | | | | | Remarks | |
|----|--------------------------|--------------|----|----|----|----|----|---|---|--------------|----|----|----|-------|----|----|----|--------|---|----|----|---------|--------------------------------|
| | | | | | | | | | | Inlet | | | | Spine | | | | Outlet | | | | | |
| | | | | | | | | | | AP | T | LO | RO | AP | T | LO | RO | AP | T | AP | RI | | AS |
| | Brach Term | 20 | 24 | 2 | 0 | 0 | 0 | | | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | | | |
| | Spontaneous Term | 20 | 20 | 22 | 2 | 22 | 2 | 0 | | 0 | 10 | 12 | 12 | 12 | | 0 | 0 | 0 | 2 | 0 | | | Just escape |
| 3 | Spontaneous Term | 08 | 20 | 22 | 22 | | 2 | 2 | 0 | 2 | 10 | 0 | 12 | 12 | 10 | | 0 | 0 | | | | | Clinical diagnosis, low pelvis |
| 4 | Timorous Vertex | 20 | 22 | 2 | 2 | 20 | 2 | 0 | | 0 | 0 | 12 | | 12 | 0 | | 0 | 0 | 0 | | | | Forced pelvis |
| 5 | Brach Term | 22 | 22 | 22 | 22 | 0 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 10 | 12 | | 0 | 0 | 0 | | | | Clinical diagnosis, low pelvis |
| 6 | Brach Term | 08 | 22 | 22 | 22 | 10 | 2 | 2 | 0 | 0 | 0 | 0 | 2 | 12 | 0 | 0 | 0 | 0 | 0 | | | | Clinical diagnosis, low pelvis |
| 7 | Brach Term | 22 | 00 | 22 | | 10 | 22 | 0 | | 0 | 10 | 0 | 22 | 0 | 0 | | 0 | 0 | 0 | | | | |
| 8 | Mild Paresis Term | 22 | 1 | 22 | 22 | 20 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | | 0 | 2 | 0 | | | | Clinical diagnosis, low pelvis |
| 9 | Short Mid Paresis Term | 2 | 00 | 20 | | 00 | 10 | 2 | | 12 | 10 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | Clinical diagnosis, low pelvis |
| 10 | Spontaneous Term | 10 | 00 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| | Low Paresis Term | 10 | 00 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 10 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | | | Clinical diagnosis, low pelvis |
| | Cervical General | 2 | 00 | 22 | | 20 | 2 | 2 | 0 | 0 | 0 | | 0 | 10 | 0 | 0 | 0 | 0 | 0 | | | | Clinical diagnosis, low pelvis |
| 1 | Cervical short Hip Labor | 00 | 22 | 2 | 0 | 22 | | 0 | 2 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | Exclusive of D.C. but 2 C's |
| 4 | Cervical mid | 2 | 22 | 2 | | 2 | 22 | 0 | | 0 | 0 | | 0 | | | 0 | 0 | | | | | | Not pelvis, low in |

TABLE II—Comparison of pelvic measurements by pelvimeter and roentgenologist 1 and 2 by roentgenologist. A to I by clinical staff with pelvimeter

| | 1 A | 1 C | 1 T | 1 LO | 1 FC | 1 NO | 1 RI | 1 PS |
|-------|-----|-----|-----|------|------|------|------|------|
| X-ray | 20 | 24 | 22 | 20 | 22 | 20 | 0 | 0 |
| 2-ray | 20 | 0 | 2 | 22 | 0 | 2 | 20 | 2 |

within 2 millimeters.

The method is too expensive to be used as measure of routine, but we have found it ver

accurate, providing the dots have been accurately placed on the plates. This is the one point in the traction.

In a marked obliquely contracted pelvis the impression given by external measurements was entirely changed by the accurate measurements for both oblique diameters which were found to be nearly equal.

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He is also a trained obstetrician, but is not capable of making accurate measurements.

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AN ASEPTIC METHOD OF INTESTINAL ANASTOMOSIS

AN EXPERIMENTAL STUDY

BY WALTER C. BURKET, M.D. AND WILLIAM B. MCCLURE, M.D. OF CHICAGO, ILLINOIS
 From The Otto S. A. Sprague Memorial Institute Laboratory of The Children's Memorial Hospital, Chicago

IN consequence of the lack of a satisfactory aseptic method (1) of intestinal anastomosis and more especially because of the mortality from infection following open resection and suture of the large intestine the present study was undertaken.

HISTORICAL

Methods and devices have been reported which are intended to decrease the amount of soiling at the time of operation. However it may be said that practically all of them necessitate the withdrawal of some instrument or material through the line of sutures in order to complete the anastomosis. One may mention for example, Frank's coupler (2) 1896-1899, the forceps of Laplace (3) 1898, O'Hara (4) 1900,

McGraw (11) 1891 and the elastic ligature and the sliding metallic draw-string of Pockhammer (8) 1906 and Wertheim (12) 1906. Certain

1892 Albee catgut rings (14) 1891 Robson's (15) 1893 and Ashbaugh's (16) 1895 decalcified bone holdins, Habsted's inflated rubber cylinder (17) 1898, Harrington's (18) 1902 and Gould's (19) 1904 segmented rings with screw

through the invaginated stumps of the abutted,

mucosa was occasionally dragged through the suture line and into the metallic tube through which the wire loop worked. Later an instrument was devised, which consisted of a series of knife blades, united to form a diaphragm (like the Kodak line diaphragm) which could be closed by lateral pressure. However this instrument was difficult to maintain in position, as inserted, and also left a long flap of intestinal wall hanging within the lumen. Various release sutures were studied, but they also presented the danger of turning in too much intestinal wall and withdrawal of material through the suture line.

Subsequently we have developed an aseptic method of intestinal anastomosis which is dependent for success upon an instrument (Fig. 1) formed of reciprocal male and female halves

DESCRIPTION OF INSTRUMENT

and near the center is fastened a small rod, which extends forward through the inside of the cylindrical knife. A spring ratchet is attached to the

and puncturing the double diaphragm with instrument passed per rectum.

In 1916-1917 one of us (Burket) studied various ways to lessen the amount of soiling which occurs during intestinal anastomosis. A wire loop, similar to a tonsil snare was used to cut

ratchet tube, on the upper surface of which is a

cover-rod ratchet catches. The female half of the instrument is composed of three distinct

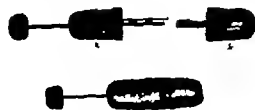


Fig. 1. Male half and female half of instrument assembled and ready to evacuate. Shows the instrument assembled and ready to evacuate.

perforates the segments from side to side. The segments are essential in order to release the ratchets and to permit easy inspection of the threads, central tube, and groove. A pasteboard dial, *b*, covers the flat hard surface of the female half in order to protect the keenness of the circular cutting edge of the male knife blade.

OPERATIVE METHOD OF INTESTINAL ANASTOMOSIS

Our aseptic method of intestinal anastomosis (Fig. 3) is as follows: The intestine is resected between two ligatures of heavy silk, with the

ment described, are inserted one into each gut end at this time and help to push inward the ligated, cauterized stumps. The two parts of the instrument are so placed that, when they are

after the instrument has been pushed together just sufficiently to permit the central tube to extend under the edge of the cylindrical blade. It is well, first, to tie the purse-string suture of the female part firmly about the central tube, and then to tie that of the male part loosely around the same tube. After the diaphragms and sutures are carefully inspected to see that all is in the proper position, the halves of the instrument are reciprocated together snugly against the intervening layers of intestinal wall, without

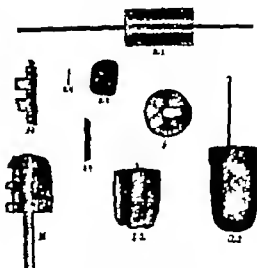


Fig. 2. Instrument unassembled.

the stitches. It is well to place but not to tie the mesenteric border mattress suture before the two halves of the instrument are ratcheted together as it is easier at that time accurately to place the stitch, and one can thus be certain of a neat and strong approximation of the mesenteric border. After the mattress sutures have been placed and tied, the operator with his left hand gently grasps the wet cotton-covered intestine which contains the body of the instrument, and with his right hand turns the cylindrical knife by

diaphragms which intervene between its circular edge and the solid surface of the female part.

on female part. Thereupon the instrument, as a

AN ASEPTIC METHOD OF INTESTINAL ANASTOMOSIS

AN EXPERIMENTAL STUDY

BY WALTER C. BURKET, M.D. AND WILLIAM B. McCLURE, M.D., LAWTON, ILLINOIS
From The Otto S. A. Sprague Memorial Institute Laboratory of The Children's Memorial Hospital, Chicago

IN consequence of the lack of a satisfactory aseptic method (1) of intestinal anastomosis, and more especially because of the mortality from infection following open resection and suture of the large intestine the present study was undertaken.

HISTORICAL

Methods and devices have been reported, which are intended to decrease the amount of rolling at the time of operation. However it may be said that practically all of them necessitate the withdrawal of some instrument or material through the line of sutures in order to complete the anastomosis. One may mention for example, Frank's coupler (2) 1896-1899, the forceps of Laplace (3) 1898, O'Hara (4) 1900, Mouskowitz (5) 1908, and Gorin (6) 1916. Lee's holder (7) 1901, the retractor sutures of Pockhammer (8) 1906, Wallstein (9) 1908, and Grey (10) 1918, the elastic ligature of Silver and McGraw (11) 1891, and the elastic feature

mucosa was occasionally dragged through the suture line and into the metallic tube through which the wire loop worked. Later an instrument was devised, which consisted of a series of knife blades, united to form a diaphragm (like the Kodak iris diaphragm) which could be closed by lateral pressure. However this instrument

too much intestinal wall and withdrawal of material through the suture line.

Subsequently we have developed an aseptic method of intestinal anastomosis which is dependent for success upon an instrument (Fig. 1) formed of reciprocal male and female halves

DESCRIPTION OF INSTRUMENT

FIG. 1. The instrument consists of two parts, a male half and a female half. The male half is a cylindrical rod with a handle at one end and a button at the other. The female half is a cylindrical tube with a handle at one end and a button at the other. The two halves are joined by a screw thread at the handle end and by a button at the other end. The instrument is used to perform intestinal anastomosis.

button #3, to serve as a handle with which to rotate the knife is fastened by the pin #1 to the front end of the rod.

The entire surface and back of this protecting cover is perforated, the shaft and near the center is fastened a small rod, which extends forward through the inside of the cylindrical knife. A spring ratchet is attached to the front end of the rod.

The female half of the instrument is formed of a solid, somewhat conical-shaped structure #1 which contains a projecting central metallic ratchet tube, on the upper surface of which is a metal groove to receive the male protecting-cover rod. Above the groove within the solid part is a threaded metallic surface #3 on which the cover-rod ratchet catches. The female half of the instrument is composed of three distinct

approach an aseptic operation. Recently (1921 and 1922) Dr. Halsted (1) reported the procedure of abutting the closed ends of the large intestine and puncturing the double diaphragm with an instrument passed per rectum.

In 1916-1917 one of us (Burket) studied various ways to lessen the amount of rolling which occurs during intestinal anastomosis. A wire loop, similar to a torsal snare was used to cut

and thus removes the opportunity for temporary obstruction, or too great narrowing of the lumen which results from a long intimated collar of intestines.

5. Soiling is reduced to a minimum dependent upon the effectiveness of the cautery and the skill with which sutures are placed in the submucosa without penetrating the mucosa.

It is intended at a later date to present further studies with our aseptic method of intestinal anastomosis.

REFERENCES

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- Recently Dr. Halsted has given more complete

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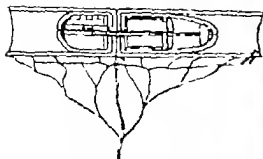


Fig. 3. Diagrammatic longitudinal section; aseptic



Fig. 4. Specimens of living anastomosis from dogs

blade in order to re-establish the lumen is shown in Figure 4, a and b. The rent in the mesentery is closed with a running glove suture, care being taken to avoid injury to any blood vessels which may supply the region of the anastomosis. The remaining intumed intestinal collar is just the

rupted mattress sutures.

STUDY OF THE ASEPTIC METHOD

We have employed the above method frequently on freshly isolated pig's intestine and also, by aseptic operation on living dogs under ether anesthesia.

We have determined that a smooth-edged, solid, circular knife blade (Fig. 3 a1) cuts easily and uniformly against a solid surface, while an irregular serrated, or scallop-edged knife or a series of knife blades seem to be unsatisfactory because almost invariably shreds of

serotized instruments is at hand in order to be adaptable to intestines of varying diameter.

The method is suitable for small and large intestines.

ADVANTAGES

The advantages of this method of intestinal anastomosis are that—

1. It cuts through the closed abutted ends of the gut and promptly re-establishes the lumen without exposing the operative field to soaking from the opened intestine or by the withdrawal

intertire with the drawing (as in the Murphy button). The cylindrical knife serves only as one of the temporary instruments of the operation, just as do the needles and hemostats, and is removed from the field before the operation is completed.

2. The remaining intumed cuff of intestinal wall is a desirable length, and is neatly sharply and uniformly cut.

3. An anastomotic opening is obtained which closely approximates in diameter the gut lumen

report is the most satisfactory. A series of six

As each site of reaction, the intestine is divided by the actual opening between the fully phased Landis and the change are thoroughly checked during the procedure.

and thus removes the opportunity for temporary obstruction, or too great narrowing of the lumen which results from a long intumed collar of intestines.

5. Soiling is reduced to a minimum, dependent upon the effectiveness of the cautery and the skill with which sutures are placed in the submucosa without penetrating the mucosa.

It is intended at a later date to present further studies with our aseptic method of intestinal anastomosis.

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EDITORIALS

SURGERY, GYNECOLOGY AND OBSTETRICS

FRANKLIN H. MARTIN, M.D.
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Associate Editor

OCTOBER, 1922

THE UNNECESSARY OPERATION

WELL EXECUTED surgical procedures for disabling symptoms due to definite and removable causes are most brilliant and beneficent in their immediate and permanent results. There is a large group of so-called neurotic individuals who have all sorts of real and imaginary symptoms that mimic very closely every variety of organic disease. Operations, when extended to this type have been followed by the most disappointing results. In the evolution of abdominal surgery the ovary the retroverted uterus, the mobile kidney the functional stomach disorder the colon, and the gall bladder have in turn been subjected to operation. All were of the neuropathic habitus, many had the stigmata of degeneracy and had operations chronologically on the organs in the order named for practically the same symptoms with slight variations. Surgeons found the futility of such measures and abandoned largely any operative attack upon these organs without very definite and genuine indications. There yet remain well-meaning men who lack discrimination and experience and make the error of attempting to extend operative relief to this unfortunate type of individual upon

insufficient clinical data and inadequate pathological criteria. There are regrettably some unconscionable pot hunters who will operate on anybody that will hold still. Every hospital should eliminate that kind of man.

For those possessing judgment and honesty the ubiquitous neurotic whose complaint simulates real pathology challenges his scrutiny and restraint. Metastatic lesions are miraculously cured by the removal of real foci of infection, yet it is being notoriously misapplied and tremendously overdone. The uncured peripartetic "neuro" now commonly relates operations obviously unnecessary upon the tonsils, antra or teeth instead of decorations made by numerous abdominal incisions as formerly. The general surgeon with a wide experience in handling all types of disease has learned how to *triage* the neurotic but the unwary and enthusiastic specialist too often subjects them to unnecessary operations for the cure of bizarre symptoms.

Dysfunction of the abdominal organs constitutes a very uncertain land of shifting sands. The neurotic condition is most persistent resistant and insistent. The symptoms are so vivid and the plaint is so repeated that many men fail to evaluate them correctly. The chronicity and rebelliousness of these cases make them hard to decline. A humorous publication very significantly says: "If you go to the doctor often enough you will be operated upon."

There are so many functional disorders of the digestive system without physical lesions in the stomach itself or the satellite gall bladder and appendix, that it behooves the

examiner to be most thorough-going. It is inexcusable to overlook cardiorenal and pulmonary diseases, parasites, anemias, disorders of the central and spinal nervous system that produce digestive symptoms. The X-ray fortunately can isolate practically all of the organic lesions of the stomach. The intangible nervous system that complains so bitterly is our pitfall.

Peristalsis and the secretory processes are not felt or perceived by an individual who is normally innervated. They doubtless transmit sensations to the brain that have to do with the healthful state and certainly with many abnormal states. The neurotic, how ever is keenly perceptive of these sensations that are unknown to the normal individual and in him it amounts to pain. The autonomic nervous mechanism is most delicate and influences us dominantly for good or ill. The vasomotor changes on the surface of the body such as pallor, blushing and the lesser emotions are such common evidences and yet are so striking and varied as to constitute the film of the novelist in his description of the emotional states, such as fright, pain, fear or elation. The elder Eastman once said that when a magnet receives a powerful blow on the anvil, it ceases to magnetize and when the nervous system of a woman receives a terrible emotional blow it ceases to function properly.

Moreover if excessive stimulation of the sympathetic system is constantly repeated by worry, doubt, anxiety and solicitude, the endocrine system which is dominated by the sympathetic is affected and the condition of chronic nerve tire with its pitiable manifestations occurs. The smooth running, physiological mechanism presided over by the sympathetic jangles like sweet bells out of tune. It is chance whether the gastro-intestinal function is affected or the vasomotor system or both.

The sympathetic system controlled man before the central nervous system came into being, and protected him in the primitive state from physical danger. Civilization has lessened the imminence of these dangers but substituted the more insidious and deadly danger of gruelling strenuousness and the vexatious anxiety of competitive life. The autonomic nervous system in the effort to protect man from his new enemies suffers bolshevism. It then gives rise to the various abdominal symptoms that are spoken of as vagatonias and are when more wide-spread denominated neuro-circulatory asthenia. They are often associated not only with abdominal and pelvic complaint but with pain referred to the head and back. These patients suffer so and their families and friends more so and over such a long time they think they have organic disease and will not be otherwise persuaded.

Introspection sometimes causes fixed idea tion about disease and its venousness and requires the most clear visioned, skillful and sympathetic medical management rather than surgical exploitation. Instead the surgeon is often importuned. The cases are frequently referred by the most accomplished diagnosticians who eliminate every possible source of demonstrable disease by a complete examination but assume there must be some organic trouble falling as they do in the final analysis to interpret the interplay of the nervous system. The organ of course that is blamed the most is the appendix and while fortunately it can be spared an unnecessary operation even upon that organ is not an unmixed blessing and is often unavailing and discouraging. Seemingly satisfactory results are apparently obtained occasionally but it must be realized by thoughtful men that they are purely the result of suggestion. Surgery is a very dangerous type of suggestive therapeutics. Chronic appendicitis is so easy to say and still means

so little. If it means anything in the history of a patient it means that it was probably an unnecessary operation upon a neurasthenic. It is never diagnosed in patients with a normal nervous system. Occasionally one will be beguiled into operating upon these patients and greatly mortified to find a small, cord like, white obliterative appendix that certainly is incapable of producing symptoms. We have little reason for diagnosing chronic appendicitis in the absence of definite acute or sub-acute attacks. Renal and ureteral stone often masquerade as appendicitis. Surgeons are most astute in the elimination and detection of a demonstrable disease. The place they fall is in operating upon people who have no organic disease but make a noise like they really had but we can't always diagnose that. We haven't anything. It is lamentable that a considerable number of people have had unnecessary operations upon the lowly appendix and other normal organs without benefit. The patient with a throbbing abdominal aorta or blood pressure of 100 should have no surgery that is not imperative. The thin asthenic photic woman may and can have organic disease but she is the vamp of the diagnostician and the lure of the surgeon.

WILLIAM D. HANCOCK

RELATIONSHIP BETWEEN THE ILEOCECAL COIL AND ARTHRITIS DEFORMANS

CHRONIC polyarthritis in our opinion has its origin in a focal infection in the intestinal tract due to an unbalanced or perverted intestinal flora made possible by the failure of some part of the ileocecal coil to empty itself properly. From the careful and repeated X-ray examination of one hundred cases of arthritis and the abdominal operative findings in sixty cases we have been able to draw some very definite

conclusions as to the existence of an intestinal focus of infection, the nature of the intestinal deformity, and the method of its production.

Infections of the teeth and tonsils are undoubtedly the cause of many cases of acute arthritis, and their removal quickly clears up the symptoms. But in chronic cases, the removal of tonsils and teeth has, as a rule, very little permanent effect, the reason being that an intestinal infection has taken place and a larger focus developed so that then the clearing up of the head foci hardly affects the load of infection at all.

The similarity of the picture of the ileocecal coil in all of these cases has led us to the conclusion that the typical soil for development of arthritis is a congenitally mobile caecum which has been tacked back to the side wall of the abdomen by nature in an effort to lift up and anchor a prolapsing organ.

By a reduplication of peritoneum starting at the right colic artery and extending to the parietal peritoneum over the right kidney the colon is rolled and folded so that it gives the appearance of an hour glass, with the caecum thin walled and toneless. There is usually a binding down of the ileum somewhere in its terminal 8 inches (20 centimeters) increasing the torsion in the ascending colon so that the physiological function of the colon is crippled and the caecum becomes an inert sac which does not empty itself. This sac constantly filled with culture medium becomes infected with streptococcus, either from a head infection or from the terminal ileum, which is the natural habitat of the *streptococcus viridans*. The streptococcus becomes then the predominating colon organism and we have an overbalanced flora resulting, which, in its turn, becomes the focus of infection that keeps up the arthritic disease.

The most striking results following the removal of the right colon have proven to us

the colonic origin of the disease. The removal of the right colon deprives the patient of his filter and for 10 days there is practically no water absorbed by the intestinal tract. It becomes necessary to give this patient water under the skin in order to prevent dehydration. Our routine consists of giving a quart (1 liter) of salt solution daily by hypodermoclysis until the quantity of urine increases from 1,000 to 2,000 cubic centimeters. This happens usually from the tenth to the twelfth day. During this ten-day period the patient makes a wonderful recovery from joint trouble. In from 48 to 72 hours, the swelling disappears and the joints become more and more movable and the pain entirely disappears but on the day the quantity of urine doubles showing that the intestinal tract is again absorbing water the symptoms recur. The perverted flora is still able to act as a focal infection and the joints then clear up slowly as the flora returns to normal. The removal of the right colon, however in debilitated patients is rather a formidable procedure and we have endeavored to develop a method of restoring the physiological function of the crippled cecum without its removal.

The interference with physiological function of the cecum is easily demonstrated by dividing the constricting band with a sharp knife at its junction with the parietal peritoneum. The ascending colon immediately rolls out until 3 or 4 inches (7.6 or 10 centimeters) separate the ends of the divided band and the cecum regains its normal color and con-

tracts on mechanical stimulation. We believe that the interposition of tissue is the most important step in preventing recurrence and we use free omental grafts to fill in all gaps and cover all denuded surfaces.

We have found the unpuckered mesoappendix spread out and turned over toward the midline most useful in covering the denuded surface developing on the mesentery of the ileum after the division of a "Lane's kink," and we believe that again the interposition of tissue is most important in preventing a recontraction of peritoneal surfaces and a redevelopment of the kink.

If there is no mechanical intestinal abnormality but instead a general colon sluggishness, the after surgical treatment designed to re-establish a normal intestinal flora, without surgery will produce the same result. We have in a number of cases obtained great symptomatic improvement by this treatment without any surgical procedure. Other patients, treated medically without any improvement, have had an immediate relief of symptoms following a surgical procedure to remove the intestinal blockade after which the same medical régime was resumed.

The joints become amenable to orthopedic treatment as soon as the pain subsides, and operations and manipulations can be carried out without fear of lighting up another attack of acute inflammation, which always hampers the orthopedic surgeon when he attempts any radical procedure in the presence of the infection.

REA SMITH

MASTER SURGEONS OF AMERICA

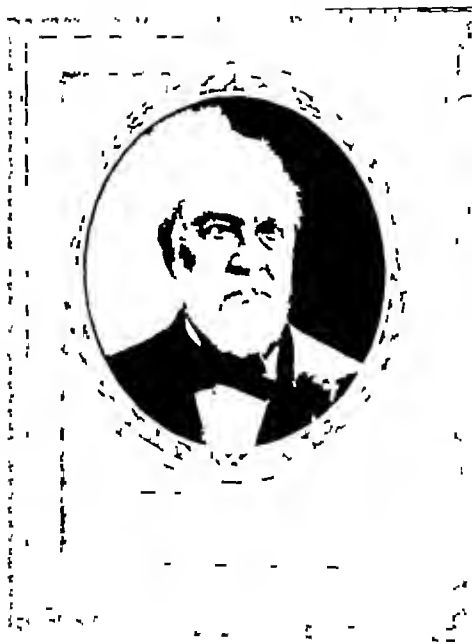
EDMUND ANDREWS

DR ANDREWS was born in Putney Vermont, in 1814, and died in Chicago, in 1904. His father was the Rev. Dr. E. D. Andrews, a Congregational minister and his mother Mrs. Andrews (née Lathrop) was the daughter of a physician. The family history shows an unbroken line of American-born ancestors dating back to 1728. His grandfather was a soldier in the Revolutionary War. A brother of Edmund was a medical missionary in Hawaii and a graduate of Dartmouth. This brother was the father of the late Dr. George P. Andrews, sometime dean of the Detroit Medical College and professor of medicine in that institution. Another brother was a federal judge in Knoxville Tennessee.

In the early days and especially in rural communities the meagerness of the salary of a minister of the Gospel made it necessary for him to employ additional measures of support, and young Andrews from early boyhood became inured to the hardy discipline of his father's farm. But this was never allowed to interfere with attendance at the best schools in the neighborhood and on occasions home instruction was given as well. He describes himself at this period of life as a great straddle-legged rustic who had not achieved noticeable popularity as a beau. Loss of voice compelled the father to withdraw from the ministry and after several smaller changes in location in 1841 the family moved to Armada, Michigan and there proceeded to carve a fine farm out of the primeval forest. Meantime young Andrews was kept at his studies as diligently as possible and his preparatory work was so well accomplished in the Academy of Romeo, Michigan that in 1846 he was admitted to the sophomore class of the University of Michigan which just then had opened its doors.

During his career as a student he manifested a decided preference for the scientific studies, and this preference dominated his activities throughout life. While attending his class work he helped out his expenses by teaching vocal music and leading the church choir.

He received his bachelor's degree in 1849 and in 1850 entered the medical course which had just opened its doors for the first time in 1851.



Immediately after his graduation Dr Andrews was elected demonstrator of anatomy in his Alma Mater and a year later was made professor of comparative anatomy. In 1856 he came to Chicago to accept the demonstratorship of anatomy in the Rush Medical College but he soon found this position to be uncongenial and relinquished it.

While still connected with the University of Michigan the young philosopher had published several essays in the medical periodicals of the country in which he advocated a graded system of medical teaching and the requirement for admission to medical colleges of a respectable measure of preliminary scholarship. It was, therefore, easy and natural for young Andrews to join with N. S. Davis, H. A. Johnson and other physicians of like spirit, in founding the Chicago Medical College which was the first medical college in the United States to adopt a graded system of instruction. Dr Andrews occupied the chair of surgery and clinical surgery in this institution for many years.

When Dr Andrews came to Chicago he left behind him in Michigan two remembrances. The Michigan State Medical Society of which he was one of the organizers and the *Peninsular Journal of Medicine and the Collateral Sciences* of which he was one of the founders.

Early in the Civil War Dr Andrew was appointed surgeon-in-chief of Camp Douglas in Chicago then a training camp for state troops but soon after he was appointed to the Federal Service as surgeon of the First Illinois Light Artillery and served in the campaigns against Shiloh, Corinth, and Vicksburg. After some months of hard service he contracted dysentery which continuing without check or abatement finally became so severe as to imperil his life and compel him to withdraw from the service. Full recovery required a year and a half of careful treatment after his return to Chicago.

During his military service he was the first to keep systematic records of army cases of disease and injury. His report to the Surgeon General have been used as the basis on which the records of the office of the Surgeon General have since been kept. Some time after his withdrawal from the army Dr Andrews published a very extensive essay on military statistics, which was accepted by later writers as authoritative for many years.

He visited Europe in 1866 and spent his time mostly in the hospitals of Paris and London. He was powerfully impressed by the teachings of Lister.

One of the most notable of Dr Andrews' labor was the study of the relative dangers attending the induction of anesthesia by chloroform, ether, nitrous oxide and a mixture of chloroform, ether and alcohol. His conclusions based on the analysis of hundred of thousands of cases were quoted as authoritative in current and textbook literature for many years thereafter. A fact not generally known is that Dr Andrew was the first to test and to write on "Gas-Oxygen Anesthesia."

In *Science*, August 1911 Professor Charles Baskerville of the College of New York refers to the experiments of Dr. Andrews in 1868 with a mixture of oxygen and nitrous oxide to produce a non-asphyxial anesthesia and then says:

Although Andrews published accounts of several cases in which the mixture had produced more satisfactory anesthesia than the nitrous oxide alone, his observations failed to attract the attention they deserved—obviously because the accounts had not been published in a medical journal at all but in a science magazine.

There was very little unemployed time in Dr. Andrews' life. He was a tireless investigator. Recreation was sought in the wilds of nature. His frequent excursions to mountains and forests and rocky islands and lakes and rivers, although they furnished boundless delight and begot an exaltation of spirit in the contemplation of the grandeur and sublimity of nature's works that was very near to worship, had other objects in view. They were used in the observation of countless botanical, zoological and geological facts. The museum of the University of Michigan and the Chicago Academy of Science bear eloquent testimony to this effect.

Dr. Andrews was one of the founders of the Chicago Academy of Science and served for many years as its president. There were condutors and noble financial supporters. But through lean and fasting years, through years of discouragement and years of disaster and years of almost complete abandonment, it was Edmund Andrews and at times he almost alone, who held fast the self-sacrificing courage of love and duty. It is now a noble monument—the repository of matchless treasures—but the noblest thing it can show is the story of its struggle for existence and in that story the name of Edmund Andrews will forever be the lustrous feature.

As a surgeon Dr. Andrews was always in the forefront of progress. Of mechanical bent he originated a number of orthopedic appliances and other instruments which contributed to the growth and precision of the mechanics of surgery. For many years he was the only surgeon in Chicago who limited his work exclusively to surgery.

He was the first to use Listerism or antiseptics in Chicago. These were the pioneer days of modern surgery. Asepsis had not been thought of. The efforts to prevent surgical sepsis were of course faulty and often ineffective but the fighting investigators struggled on and on toward the truth, and Edmund Andrews struggled as patiently and valiantly as any.

When one does the work of his day so conspicuously well that his brethren of the profession accept him as teacher and guide the historian can do no less than make respectful obeisance and pass on.

As a teacher of surgery Dr. Andrews was always profoundly respected, yes, and loved by his students. He was not a fluent speaker—he made no attempt

whatever at grace or elegance of diction,—but his utterances were unfailingly delivered with earnestness and power and he was a great explainer and entertainer. He was there to teach and he taught well.

He carried no levity into the lecture room though his bearing was always amiable and kindly and patient, and his words were often supplemented by offhand drawings on the blackboard. He was delightfully deft with the crayon and his illustrations, made with apparent casualness of stroke and without interfering with the consecutiveness of his speech in the smallest detail, contributed entertainingly to the clarity of his expositions. His mouth was as clean as a little girl's. A large heavy bustling personality—a delightful laughter a laughter which was not merely vocal and facial but included the shaking participation of his whole body and was full of happiness and mirth and reality. You had to laugh with him whether you saw the joke or not.

But he did not spend much time that way. He was too busy.

In times of quietness he often presented the appearance of preoccupancy of mind not vacuity but concentrated activity—the expression of a man whose mind was busy with problems and full of them. He loved problems and lived with them.

In relation to his fellow men, his mind was remarkably free from unfriendliness. Hollister who had known him intimately since their school boy days testifies that he had never heard an unfriendly or a caustic word from Dr. Andrews' lips concerning another member of the profession. He exemplified in his conversations the truth of the scriptural declaration that "Charity suffereth long and is kind." He could hardly fail to be a devout man born as he was into an atmosphere of religion and reared in it. But his religion was very unobtrusive. He merely lived it—that is all.

Dr. Edmund Andrews, scholar thinker investigator who under the guise of honestly seeking information was usually giving more than he received. Modest in demeanor he was generally regarded as the most learned—at least as one of the most learned—members of his profession. He left some enduring proofs of his usefulness to the world.

The Museum of the University of Michigan,

The Michigan State Medical Society

The Chicago Medical College

Origination of Army Records in the Surgeon General's Office,

Original Studies and Records of Gas-Oxygen Anæsthesia

The Chicago Academy of Science

WILLIAM E. QUINE

TRANSACTIONS OF SOCIETIES

CHICAGO GYNECOLOGICAL SOCIETY

REGULAR MEETING HELD MAY 19, 1923 DR. WILLIAM C. DANFORTH, PRESIDENT

URETERO-ABDOMINAL FISTULA

Dr. EMIL RIES: The patient, a woman, 37 years of age, was married in 1906. In 1908 she was operated on, at which time she says that two tubes, one ovary, and the appendix were removed. She was in fairly good health until 1920 when she began to have protracted and copious menses

over the catheter. I then put two more threads

bladder with a probe on the bulging ureters

fistula. The patient's temperature began to rise and

her about 20 days ago and she is now

passed some artery forceps down into the pelvis and left them there for 24 hours because of the severe hemorrhage. It is possible that one of those forceps caught the ureter and produced gangrene. Second,

of the anus and the ureter was cut near the point where it entered the bladder. My ureteral catheter entered for a distance of 5 centimeters. The abdominal cavity was protected by adhesions.

A problem which arises in such cases is whether if

think the outcome justified my decision. Why the ureter did not hold I believe was due to the fact that it was too short.

There is nothing to be said about the kidneys

when it is impossible to determine how much anatomical change has been produced or how much damage has been done.

DISCUSSION

Dr. T. J. WATKINS: In such cases I occasionally have been tempted to make a tongue-shaped flap of the bladder wall for an anastomosis for a short ureter but have never done it.

Dr. EMIL RIES (closing the discussion): Flap methods are often used in stomach surgery for the

met the ureter more closely but there was so much structural change that I left that out of the question.

ANACATADIDYMUS TERAS

Dr. LOUIS C. YERGEN: The

in the clinical history. This form is a double monster in which there is a union from the pubes to the umbilicus. Some of these monsters have two, three, or four legs. The four legged variety of which this is a specimen is known as the anacatadidymus teras (?). In these cases there is usually some abnormality in the genitalia—an atresia of one or both recta and anal or simply one anus.

DISCUSSION

Dr. JOSEPH L. BAKER: This specimen is the third pair of united twins we have had at Michael Reese Hospital in 4 years. The first was full term, the second was about 6 months, and the third is the specimen that is being passed around.

ABDOMINAL TUMOR CONSISTING OF SMALL INTESTINE WITHIN PERITONEAL SAC

Dr. JOSEPH L. BAKER: This patient age 51 entered the hospital in the night because of acute pain in the right lower quadrant of the abdomen. Examination showed a mass about the size of a child's head which was globular in form and movable. There

nal end of the ileum. The ends of the bowel were placed

coloration an appendectomy was done. Recovery was uneventful without further obstructive symptoms. The tumor on being opened proved to be only a

are also present in the outer muscular layer. There is nothing to suggest that the tumor is tuberculous or any other specific process.

The photographs that accompanied the article were exact duplicates of the appearance presented by our tumor in the abdomen and afterward on being split open. The consistency of the tumor before the mass was excised was rather doughy.

PERSISTENT CORPUS LUTEUM CYST CAUSE OF HYPERTROPHY OF LINING OF UTERUS

DR A H CURTIS A woman of 36 who had three

curetted, thinking there might be some retained decidua material. Dr LeCompt decided there was

microscopic examination we found an enormously

was this one only seen on one corpus luteum cyst. This suggests that persistent corpus luteum cysts are responsible for hypertrophy of the lining of the uterus

from normal and which escape our attempts at classification

DISCUSSION

Interna cyst or not but it breaks under your finger and the next day the patient menstruates. In such cases there is disturbed function of the endometrium

Dr N S HILANTZ The persistent corpus luteum in animals is a solid body. The corpus luteum that

ovary I saw her 6 weeks later and the body was

due the persistent corpus luteum in cows

Dr CURTIS How did you know that it was a persistent corpus luteum?

Dr HILANTZ It was there at 6 examinations, 6 weeks apart.

PROLAPSE OF THE RECTUM

DR THOMAS J NATALIS Mrs E W age 26

obvious to rectum all over

Operation. The operation consisted chiefly in re- of the levator ani muscle and its associated

but she returned 3 months later with a prolapse but with a firm perineum. A small plastic operation on the rectal wall resulted in a cure

The case was a congenital defective levator ani which became excessively relaxed, following the development of large hemorrhoids.

Rectal prolapse is a hernia and results from a defective levator ani muscle. We believe that repair of the levator ani muscle along the rectal plane the entire length of the posterior vaginal wall, incorporating the rectal wall, is a valuable adjunct in the treatment of prolapse of the rectum.

DISCUSSION

DR. VERNON C. DAVID. The etiology of prolapse of the rectum is not entirely clear. Perhaps the most outstanding fact is its frequent occurrence in infancy and childhood. Napelbow's statistics show over 60 per cent of the cases were in children between 1 and 3 years of age. Waldeyer's post-mortem study of the pelvis in a number of children

abdominal pressure but was pushed downward. Zuckerkandl observed that the cul-de-sac of Douglas was deeper in embryonal life and early infancy, reaching to the lower border of the prostate in contradistinction to its usual position at the level of the seminal vesicles in adult life. In addition to these factors the marked relaxation of the levator ani, sphincters, and rectoperineal and rectococcygeal muscles in cases of rectal prolapse is well known. That any one of these factors is the deciding one in the causation of the condition is doubtful. Jeannel and Verneuil have called attention to the rarity of rectal prolapse after traumatism or destruction of

mattress stitches. Finally after cutting off the excess mucosa it is sutured back to the skin. This operation is best done under local anesthesia with addition of adrenalin to check some of the hemorrhage. The principles underlying the operation are those of obliteration of the prolapsed plication of the sphincters and use of the puckered muscularis of the prolapse as a pterygium above the sphincters to prevent recurrence.

DR. T. J. WATKINS (closing the discussion). Dr. David described very clearly the etiology and treatment of rectal prolapse. If I had removed the mucous membrane and puckered the muscularis as he described, in conjunction with the operation I did upon the levator ani, the second operation probably would not have been necessary. I approve highly of his remarks relative to the deep cul-de-sac of Douglas in such cases.

PELVIC MEASUREMENTS BY X RAY

DR. ALFRED BAKER SPALDING, San Francisco, California, read a paper on "Pelvic Measurements by X Ray" (see p. 813).

DISCUSSION

DR. DAVID A. HOWER. There are some things about this method which make me rather doubtful of its value even though I was formerly enthusiastic about it.

Localization of points for all transverse measurements is easy in clear roentgenographs, but such very important points as the promontory and the psoas or surface of the pubis are very difficult to locate exactly even with the stereoscope.

If you ask a dozen people to identify the actual point called the promontory, the variations may be from 1 to 3 centimeters. Similar difficulties exist in localizing the desired point behind the pubis. These differences seriously affect the calculations. What is the conjugata vera? It is the available

muscular tone is weak and atrophic. Long standing diarrhea and factors causing increased intra-abdominal pressure play the principal rôle.

In the treatment of prolapse of the rectum the multiplicity of ways and means stamp the efficacy of the procedure with doubt. Many and varied operations and methods have been proposed. Of them all I regard as best the operation described independently by Rehn and Delorme about 20 years ago. This consists in a circular incision through the mucosa at the mucocutaneous line in the rectum, the segment of the rectum is then pulled down to the vulva by the pro- when it is inside of the sphincters, which are now narrowed by

the top of the symphysis which to my mind is faulty.

DR. J. B. BROWN. I would like to say that Dr. Thomas of New Haven, has a method whereby he can very accurately measure the rim of the pelvis. I think the roentgenologists are helping us to secure accurate pelvic measurements but I believe the obstetricians must co-operate with the roentgenologists, just as the surgeon co-operates with the roentgenologist. At Stanford we are working on a method of cephalometry that I believe is going to give accurate results.

AMERICAN COLLEGE OF SURGEONS

THE PRESIDENT'S ADDRESS, AMERICAN COLLEGE OF SURGEONS

By JOSEPH B. DEWEY, M.D. F.A.C.S. PHILADELPHIA

WE have gathered here in this historic city at this time with the prospect of reaping goodly harvest of knowledge through the exchange of professional experiences and in the delights of pleasant social intercourse. Men have come from far and near to honor our meetings with their presence and by their presence to emphasize anew that science knows no boundaries,

aspects of things pertaining to public health

obscurely to use the words of your former Director General, which he evidently thinks will be my lot after relinquishing the high office with

The poet has said, Art is long and Time is fleeting, but he might well have included Science in his dictum. In the world of science and particularly in the realms of medicine and surgery while also, we sometimes too soon get the immediate results of our efforts, more often we have to wait in silence and in patience for the evidence of the beneficial results of our work. How often do we fondly think we have been successful when to we are confronted with disappointment. We have to wait at least five years before we can claim an actual cure for our cancer cases. All of us have seen a recrudescence of trouble in the region of the gall bladder after five, seven, and even ten years of apparent freedom from symptoms. In our experimental and research work, Science demands years of labor and patient waiting before the research worker dares to announce a triumphant result. No one better than we surgeons are aware of how limited we are in the midst of our tremendous forward strides in methods and technique. But whatever may be our shortcomings with regard to individual results, in the long run the work of the American College of Surgeons along the line of improved standards in surgery in hospital management and in public health, must and will be productive of results, and today we may indeed harbor the assurance, that we are preparing a rich heritage for those who are to come after us.

It is in turn this consciousness that must inspire us to continue unabated our efforts along the lines so auspiciously inaugurated.

It was but natural that hospital standardization should develop as an important adjunct to the original purpose of the College—the betterment of surgery in this country. We cannot ex-

From a general survey of the work, we can gather the gratifying knowledge that our efforts have not been limited to the improvement of our immediate professional demands, but that the work
er a
larger number of communities than ever before.

fect good surgery to emanate from poor surround-

of Trustees not all of whom however manage to say as yet realize the importance of scientific standards. Nevertheless, through the hospital boards to a great extent the message of improve-

fact and to endeavor to work up to at least the standards which are necessary to

Good surgery today means manual dexterity combined with critical acumen quick decision combined with deliberate manipulation keen observation combined with logical deduction singleness of purpose combined with multiplicity

of aims and finally the enthusiasm of youth preserved undiminished throughout the years of work and worry

These are the foundation stones upon which the American College of Surgeons is endeavoring to rear its super-structure. The international scope of our organization is attested by the presence of distinguished visitors from territories beyond the confines of these United States. That science recognizes no geographical boundaries likewise is attested by the national and international fame of him whom you have selected next to wear the mantle significant of the highest honor in the gift of the College. The president elect combines in his person the essentials of a

1 The accomplished surgeon, man in his chosen field and at the same time the erudite scholar with that wide vision which only "an intimate acquaintance with the best that has been thought and said can confer" It is my privilege and very great pleasure to present to you your President-elect Dr. Harvey Cushing

ONTARIO SECTIONAL MEETING OF THE CLINICAL CONGRESS

THE

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city wi
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George W. Lusk, chairman of the Executive Committee for the Province presided. The program of this meeting was as follows:

Hospital Program of the American College of Surgeons

Franklin H. Martin, M.D., Director General

Hospital Standardization

Surgeon's Standard

George W. Lusk, M.D.

most enthusiastic public meetings the College has ever held.

On Tuesday morning clinics were conducted at the Victoria and St. Joseph's Hospitals.

A. F. Brown, M.D., Victoria Hospital Operating Room

H. A. Brown

Hedley H.

Room

E. S. Brown

Hospital

George W. Lusk, M.D., Cleveland, Ohio

Dry Labor, its Present Day Management by the

(F. W. Lusk)

George W. Lusk, M.D., Secretary Ontario Medical Association

Hospital Standardization in Canada

Malcolm T. MacEachern, M.D.

Round Table discussion conducted by Malcolm T.

MacEachern, M.D.

The Public Meeting was held in the Majestic Theater on Monday night. Long before the time for the meeting

Address of Welcome.

Malcolm T. MacEachern

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is highly probable that its origin is not to be found in a single factor. From the clinical standpoint, the villous character of the polter is of very great importance. Increased vital energy of the epithelium in villous growths should arouse the suspicion of malignancy. Nodules and cysts of entirely innocent aspect must be thoroughly removed with their capsules.

VON LÖNNBERG (Z)

SURGERY OF THE CHEST

CHEST WALL AND BREAST

W. A. D. Tumors of the Breast from the Standpoint of the General Practitioner and the General Surgeon. Ill. and 11 J. O. 1910, 85

differentiation between a benign and a malignant tumor depends very largely upon whether the tumor is movable in the mammary gland. Absence of mobility is the mammary gland tumor.

SCHE

1. Factors and Disposition of the Breast with a good result by operation is the result of the discovery of a mammary gland and being so palpable. Clinical Features—General Physiology of the Breast.

the effects of phrenicotomy (Kirschner) has shown that destruction of the function of the phrenic nerve converts the corresponding half of the diaphragm from a tonic muscle to a passively moved membrane and causes a decrease in the size of the pleural cavity and cessation of motion of the lung partially those portions which border on the diaphragm. In the treatment of bronchiectasis such inter-

the phrenic nerve 5 cm. long was resected above the scalenus muscle. The result was satisfactory. The

crease in the amount of sputum and disappearance of the pathologic phenomena which were noted on auscultation.

Unilateral phrenicotomy is therefore recommended by the author for the treatment of bronchiectasis in the lower portion of the lower lobe. According to Kirsch spontaneous reunion of the nerve ends occurs after four months and ultimately there is a complete return of the function of the nerve. When the freezing method is used it requires six months (Trendelenburg).

H. KIRCH (Z)

4. Consideration of the Surgical Treatment of Bronchiectasis. South. M. J.

ectasis has always been a recent origin of the procedure of the lung free from the presence of probable in the

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 their capsules

STEWART L. (2)

SURGERY OF THE CHEST

CHEST WALL AND BREAST

BEVAN, A. D. Tumors of the Breast from the Standpoint of the General Practitioner and the General Surgeon. *Illinois M J* 193 xlv 83

The differentiation between a benign and a

the effects of phrenicotomy (Kirschner) has shown that destruction of the function of the phrenic nerve converts the corresponding half of the diaphragm from a tonic muscle to a passively moved mem-

tumor or of chronic inflammatory processes in the breast

A malignant tumor of the breast with a good prospect of permanent cure by operation is the

invited to the primary focus there being no palpable in involvement of the axillary lymph nodes

The author is in favor of opening a tumor of the breast and making the diagnosis from the gross pathology found. He recommends also making sections in doubtful cases and removing the breast later if necessary. There is no danger in doing this as cancer cells extend by a slow process of extension growth.

The operative procedure should be a block dis-

crease in the amount of sputum and disappearance of the pathologic phenomena which were noted on auscultation

Unilateral phrenicotomy is therefore recommended by the author for the treatment of bronchiectasis in the lower portion of the lower lobe. According to Krieb spontaneous reunion of the nerve ends occurs after four months and ultimately there is a complete return of the function of the diaphragm. When the freeing method is used regeneration requires six months (Trendelenburg).

HARVEY (2)

of the

The 50 per cent mortality of cancer of the breast is due to the cases which reach the surgeon late. With further education of the laity regarding tumors of the female breast this mortality should decrease.

II A M KNOX 31 D

TRACHEA AND LUNGS

Boettendorfer L. Phrenicotomy in Bronchiectasis. *Zur Phrenicotomie bei Bronchiectasie*. *Therap d Chirurg* 9 (1904) 203

The production of unilateral paralysis of the

Graham E. A. A Consideration of the Surgical Treatment of Bronchiectasis. *South M J* 9 x 639

The treatment of bronchiectasis has always been unsatisfactory. Certain cases of recent origin respond to the comparatively simple procedure of artificial pneumothorax and are rendered free from symptoms. In some cases a foreign body is present and should be removed. Radical surgery is probably unwise until less radical measures have been tried. The most radical measure is lobectomy.

There are two principal methods of operating: one by an intercostal route and the other by preliminary resection of ribs. The former constitutes by far the most brilliant procedure and when successful, causes the least deformity but it is

more dangerous than the latter. The second method is the more laborious procedure but safer as it can be done in any number of stages and practically insures against retraction of the bronchial stump into the mediastinum.

The second operation is described essentially as follows:

A crescentic incision is made in the skin of the

The skin and fat are turned up and the latissimus dorsi is divided transversely to form part of the flap. Subperiosteal resection of the seventh, eighth, and ninth ribs is done from their angles to the anterior axillary line. The intercostal bundles

are rounded and walked off by gauze packing and the wound is closed without drainage. The gauze is removed gradually and the space may be deaerated until it is clean.

The amputation of the lobe may be carried out as soon as the patient is in good condition and the cavity is clean. Curved clamps are placed on the hilus and the lung is cut away distal to the clamps. Glass ligatures may be applied or the clamps left on to be removed in from five to seven days. One advantage in leaving the clamps in place is that the bronchial stump is firmly held so that it cannot possibly retract into the mediastinal space. The wound is not sutured, but the flap is allowed to fall into it. It should be irrigated carefully because a bronchial fistula is practically always present.

W. A. McKEARNEY, M.D.

Hirschboeck, F. J.: Postoperative Mediastine Collapse of the Lung. *Am J Med Sc* 1922, cliv 368

side if the condition is unilateral, and diaphragmatic and cardiac displacement. The general symptoms are less severe than those of pneumonia and embolism. Very marked dullness, an extreme increase in the breath sounds (not constant) scant expectoration and comparative absence of constitutional signs and X-ray findings are also characteristic.

Hirschboeck concludes with the ambiguous

HEART AND VASCULAR SYSTEM

Nippe: A Bayonet Puncture Wound of the Heart (Bayonetstichverletzung des Herzens). *Zentralbl f d ges vermittel Med* 1922, L 368

The heart was punctured by a bayonet.

The patient died on the 10th day.

DEATH (2)

PHARYNX AND ESOPHAGUS

The patient died on the 10th day.

An interesting case of retropharyngeal sarcoma is reported. The first symptom was difficulty in swallowing. A smooth, rounded prominence involving the entire pharynx and covering the entrance to the larynx was visible on the posterior pharyngeal wall. The pharyngeal mucosa was red, but the larynx was normal. The tumor was quite firm.

The patient died on the 10th day.

The patient died on the 10th day.

Biopsy revealed a spindle-cell sarcoma. Deep

The patient died on the 10th day.

of malignant struma, no metastases were demonstrable.

The author discusses also other diseases of the posterior pharyngeal wall especially the varieties of tumor found in that region.

DEATH (2)

Oppliker L.: Forty-One Foreign Bodies in the

1927 4 519

In all of the cases reported the foreign body was removed successfully there were no deaths. Six of the patients had also a stenosis due to erosion.

In the cases of children the foreign body was usually a toy (coin or tin whistle) while in the cases of adults they were bones, dental plates, or tracheotomies. Not only pointed and irregularly shaped foreign bodies, but also smooth objects may lead to perforation and bleeding from erosion due to pressure. One patient was first treated after six years, at which time the foreign body (coin) first caused perforation and the formation of a pericropophageal abscess. In another case a trouser button was lodged in the cropophagus for six weeks. The rest of the patients were treated after a few hours (twenty four) or a few days (fifteen).

The statements of the patients were usually found reliable and the localization was fairly accurate. In some cases the foreign body may have left the oropharynx, but when this has occurred the symptoms are less severe.

The foreign body could never be felt by palpation, but when the object was pointed palpation frequently produced intense pain. Laryngoscopy frequently showed submucous hemorrhages indicating that the foreign body had forced its way through 3 wall of the larynx. —

excellent service

A pathognomonic sign of the presence of a foreign body especially when it is located high in the oesophagus, is a large quantity of air-containing mucus in the pyriform sinus, similar to that regarded

Koenig, F.: An Operation for Diverticulum of the
(Esophagus (Zur Operation des Oesophagus-
divertikels) Deutsche med. Wochenschr. 922 21v1
710.

Koenig discusses the various operations for diverticulum of the esophagus and states that all methods of suturing and excision may be followed by complications such as fistula formation and pneumonia. Primary excision and suture of the esophagus is attended with a mortality of 10 per cent. The author has therefore followed a different course, which he calls "diverticulo-fistulization." The

or not is not yet known.

NORMANBY (Z)

Allen, D. S.: Experimental Reconstruction of the
 Oesophagus with Autogenous Fascia Lata
 Transplants. *Ann Surg* 1922, lxxvi, 157

In an experimental study on dogs it has been found possible to reconstruct portions of the entire circumference of the oesophagus with fascia lata transplants. One of the chief obstacles to be overcome in work on the oesophagus is infection because of the fact that the tube traverses the mediastinum. The technique in operations upon the oesophagus must include rigid asepsis embracing the principles of no hand touch surgery. Even the suture material must be handled with forceps and the needles threaded with instruments. Fascia seems to be the tissue of choice or reconstruction. Fine catgut should be used for suture material rather than silk or linen.

The best results were obtained by performing a two-stage operation on the cervical portion of the oesophagus. At the first operation two tubes of fascia were placed around the entire circumference of the oesophagus to form an inner and an outer tube. The inner tube was intended to serve only as a temporary structure to prevent that portion of the oesophagus from becoming adherent to the outer tube which was to be substituted for the resected portion of the oesophagus. At the second operation the outer fascial tube was split longitudinally over the portion of oesophagus to be removed along with its inner adherent tube of fascia. Stenosis of the oesophagus invariably occurred and was attributed to the small amount of fascia available in the dog. Leakage of contents was prevented by the two-stage operation.

Experiments in which intrathoracic resection of the oesophagus was performed were uniformly fatal because of infection and leakage.

H. W. FINE, M.D.

Occasionally a foreign body slides farther down into the stomach as the result of the dilation of the esophagus by the esophagoscope, an occurrence which is undesirable. The extraction of a foreign body under the fluoroscope is uncertain and dangerous.

Dicta (Z)

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Stokes, A. F.: Strangulated Right Inguinal Hernia Containing the Stomach and Transverse Colon. *Med J Australia* 1932, II, 187

The patient a well-nourished male of 42 years, a chronic asthmatic, and a very thin man of poor

reduct

Recently the hernia reached the size of a fully distended bladder became painful, and on 10 successive days could not be reduced. Attempts at reduction under chloroform anaesthesia also failed

epigastrum

The patient made a complete recovery and his asthmatic condition was improved

WALTER C. BERRY, M.D.

600

The author proposes a slight modification of the Bassini-Hackenbruch operation for inguinal hernia by means of which the lateral opening is closed more surely with maintenance of a newly formed

under the displacement of the external oblique muscle (duplication of the aponeurosis). The part of the lateral aponeurotic flap remaining is used for the formation of a short oblique inguinal canal in the anterior abdominal wall. DRECHS (2)

GASTRO-INTESTINAL TRACT

Schnitz, F.: Cystoid Pneumatosis of the Intestines in Man (Ueber Pneumatosis cystoides intestinalis humana). *Arch f. kl. Chir.* 1931, cxx, 38

The author reports the case of a farmer 36 years

scribed first in 1860.

Up to the present time seventy-four cases have been reported in the literature. The pneumato-

erous.

The article is supplemented by an extensive bibliography. TAPPINER (2)

Judd, E. S.: Excision of Ulcer of the Duodenum
J. Amer. Surg. Soc., 1922, 48, 331
 The Immediate and Ultimate Results of Gastro-
 enterostomy for Ulcer of the Duodenum

this article. Although the author has performed several different types of plastic operations on the

Gastro-enterostomy does more than effect symptomatic relief. That it causes a definite change to the ulcer itself is certain, but whether or not all ulcers of the duodenum heal after gastro-enterostomy is still an open question. The return of hemorrhage, even several years after the operation, in cases in which an ulcer of the duodenum has caused severe bleeding, would seem to indicate that occasionally ulcers do not heal completely as a result of this operation.

Careful macroscopic and microscopic studies of the tissues have proved that inflammatory lesions of the duodenum are of two distinct types: the true ulcer and the duodenitis type of lesion which is more definitely inflammatory. The second type is not a healed true ulcer but a distinct lesion. In the first type there is definite congestion and suppuration of the peritoneal coat, and the induration is usually rather extensive so that the lesion can be palpated and recognized as an ulcer with a crater. The second type is more partially congested and suppured than the true ulcer; usually there is very little, if any induration in the tissues. In many cases palpation of this lesion does not differ from palpation of the normal duodenum. If it were not producing symptoms the condition might be called a healed ulcer. Histologically it is similar to the submucous ulcer sometimes found in the urinary bladder. Clinically there is little difference between

ulcers and the reconstruction of the duodenum are accomplished as simply as possible. The operation is based on the belief that the lesion is the cause of the symptoms and that its removal will be all that is necessary for complete relief.

duodenum is made transversely on a line parallel with the ruga fibers of the pylorus. The upper transverse incision is usually placed just below the pyloric muscle and the lower one far enough below the ulcerated area to pass through good tissue. After the ulcerated area has been removed the entire surface of the mucous membrane of the duodenum and the pyloric end of the stomach are exposed for inspection.

In some of the cases of multiple ulcers it has seemed best to cauterize and suture over the deep ulcers and finish with a gastro-enterostomy. In most cases, however, the author is able to destroy all of the ulcers with preservation of a good duodenum. After the deep ulcers have been sutured over the

with three stomachs of the destroyed so that a roentgenogram made after the operation reveals much the same deformity as that produced by the ulcer, a point which should be borne in mind in the interpretation of postoperative roentgen-ray findings.

result was good and there was a marked reduction in acid.

Finsterlin, Nowak, and Koeder have reported similar operations with good results.

opinion, that very severe hemorrhages may occur in cases of duodenitis.

In view of the good results obtained it seems best to continue to treat duodenal ulcer by means of gastro-enterostomy, giving care to the selection of cases and the performance of the operation. Pyloric occlusion, as a preliminary to gastro-enterostomy, has been practically abandoned as an unnecessary procedure.

In certain cases, however, excision of the ulcer seems preferable to gastro-enterostomy and to this group of cases particular attention is given in

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Stokes, A. F. Strangulated Right Inguinal Hernia Containing the Stomach and Transverse Colon. *Med J Australia* 1922, 2, 187

The patient, a weak-minded deaf mute of 48 years, a chronic asthmatic, and a very thin man of poor

reduce

Recently the hernia reached the size of a fully distended bladder became painful, and on two

later the stomach was in its normal position in the epigastrium.

The patient made a complete recovery and his asthmatic condition was improved.

WALTER C. BAKER M.D.

669

inguinal canal.

After the median border of the aponeurosis of the external oblique muscle has been sutured to

to the aponeurosis of the external oblique in man (duplication of the aponeurosis). The part of the lateral aponeurotic flap remaining is used for the formation of a short oblique inguinal canal in the anterior abdominal wall. DICKENS (2)

GASTRO-INTESTINAL TRACT

Schultz, F.: Cystoid Pneumatosis of the Intestines in Man (Ueber Pneumatose cystoidea intestini hominis). *Arch f Klin Chir* p 2, 1922, 28

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The peritoneum of the resected portion of gut was thickened, non-transparent, and nodular in

were lined with a single layer of cells. In some places there were also leucocytic infiltrations, lymphocytes, polymuclear cells, and large giant cells.

In connection with the description of this case the author discusses this rare disease which Hahn described first in 1860.

Up to the present time seventy-four cases have

more pronounced as in the case of the cysts. These are anaerobic organisms which penetrate into the intestinal wall from the mucosa.

cysts heal spontaneously. This theory would explain the small light-colored nodules present on the serosa.

The article is supplemented by an extensive bibliography. TAYLOR (2)

Strasas, A. A.: The Surgical Treatment of Carcinoma of the Colon with a New Method of Making the Operative Field Extraperitoneal by Means of the Omentum. *Surg Clin N Am* 1922 17, 825.

The prognosis of carcinoma of the colon is more favorable than that of carcinoma elsewhere because a radical operation may result in a cure or a before the fact to the early colonic

stents and the outer blade of the parietal perito-

entire peritoneal surface closed around the drawn-through sigmoid, and the abdomen closed. The

compared with surgery of the small intestine are due chiefly to the presence of colonic diverticula and the inflammatory process which is always associated with carcinoma.

Of the earlier operations the three-stage Mikulicz procedure was deemed to do away with peritoneal infection. The objection to this method is that the bringing down of the bowel prevents the most radical removal of the carcinomatous area and the adjacent colonic lymph vessels and glands. In the author's opinion the ideal surgical procedure is a method by which the cancer and its neighboring tissue can be thoroughly and completely removed and the continuity of the bowel restored by end to end anastomosis. Leakage at the line of union can be prevented by applying the free edge of the attached omentum around the colon in such a way as to make that part of the colon extra-peritoneal.

The case is reported of a 52 year-old man with a definite large mass which could be felt through the rectum. The X ray proved the growth to be a carcinoma of the lower sigmoid and upper rectum. The symptoms consisted of severe cramps and pain during bowel movements, the passage of a slight amount of blood and mucus, and a loss of 13 lb in weight.

When the peritoneum was opened a freely movable carcinoma involving the upper rectum and lower sigmoid and about the size of a man's fist made its appearance. There was no glandular involvement. The mesenteric blades on each side

A second case reported was that of a woman 48 years old who had had symptoms of acute obstruction two and a half months previously for

was seen by sigmoidoscopy the tumor was lifted out through the abdomen

Two intestinal clamps were then applied, a

through interrupted suture was passed under the mesentery and tied. The other two were tied. Three more sutures were inserted, the

faculty

There was no bleeding. Intraluminal clamps were then applied above and below the carcinomatous

on the rectal wall. The tumor was cut away by means of an electric cautery. The sigmoid portion was freed by dividing some of its mesenteric attach-

entire colon and practically tied on the right side

was then closed.

early recovery was

ceps ten ascarides were removed from the common bile duct and the hepatic duct. The gall-bladder and the cystic duct contained no worms. From a drain which was introduced into the common bile duct an ascaris appeared on the second day after the operation. On the fourteenth day the patient was

patient was re-admitted with the same symptoms as before. There were numerous ova of ascarides in the stool. A laparotomy revealed eighteen worms in the common bile duct, which was as thick as a lead pencil, hard, and cicatricial, and also in the adjacent, markedly dilated hepatic duct. Removal of the ascarides was again followed by recovery but later the patient was given a course of worm treatment consisting of 5 ccm of palmatic acid thymol-ester administered twice daily for two days and then three times daily for three days, according to the advice of Ellinger.

The important features in the diagnosis were first of all, the extremely severe boring pains in the epigastrium which seemed to earned the pains of

estimate the mortality was 26.5 per cent. Fifty five per cent of the patients who survived the operation lived and remained in good health for more than fifteen months. As Bantia disease is always fatal if untreated, the operative mortality must be considered low.

The author reports two cases in detail. The first was that of a man 24 years of age whose illness was of three years duration. A mass was first noticed in the left upper quadrant of the abdomen and later in the right upper quadrant. There had been several attacks of hæmatemesis. The abdomen was tapped and a gallon of fluid removed. The patient was intensely jaundiced. A Wassermann test was 4 plus. The patient denied sexual intercourse. Antisyphilitic treatment was employed without success. The hæmoglobin was 60 per cent, the red cell count 3,200,000 and the white cell count 3,500. Following removal of the spleen there was gradual improvement in the blood picture and the Wassermann test became negative. The patient was out of bed on the fourteenth day. The author states that in the presence of jaundice the Wassermann test is frequently positive. Seven months later this patient was back at work and showed an increase in weight.

The second case reported was a poor operative risk. Frequent laparotomies were necessary. The pa-

BOOK (2)

McKendrick, J. S. Notes on Splenomegaly and Splenectomy. *Glasgow M J* 9 23 1911.
This article is in

Goldstein, H. I. Sarcoma of the Spleen. *Journal of Surg* 9 1911 74, 306

Goldstein states that since Friedrich in 1861

applied to diminish the size of the spleen prior to the operation. Splenectomy should be performed early before the patient has become very anemic and

splenic sarcoma.

Primary malignant diseases of the spleen have been to be very rare though cysts of various kinds are not uncommonly found at operation and autopsy. Spleens have been removed for many causes, such

3. SURGERY, M. D.

Flaher, D. Splenectomy in Banti's Disease. Third Stage with Report of Two Cases, One with a Positive Wassermann Due to J. trionica. *Surg Gynec & Obst* 9 2, 1917 172

Splenectomy as a therapeutic procedure is now accepted, and a sufficient number of cases has been reported to give it a distinct clinical basis of value.

In 240 cases reported from the Mayo Clinic the mortality was 1 per cent. These cases represented splenomegaly primary and secondary to known and unknown conditions.

The reports of splenectomy for Banti's disease are comparatively few. As near as the author could

oesons, blood, and lymph cysts have very frequently been reported, blood cysts being the most common. Moynihan collected thirty-one cases of non-parasitic cysts of the spleen in which surgical treatment was carried out.

Hagan, in 1900 collected 360 cases of splenectomy with a mortality of 33.3 per cent. Van Wert, in 1897 reviewed 374 cases with about the same mortality.

Bush, in 1901 reported a case of large-celled sarcoma of the spleen in a man 48 years old. The

complications within eight or ten days the picture is that of aseptic thrombosis.

The method is used chiefly for internal (sister rectal) piles, being employed for intra anal piles

membrane. This is best done with Bier's sacroanal discs which under local anesthesia, may be left in position until the piles do not recede after their removal.

two hours after the injection many patients complain of numbness of the rectum. This is

they often become gangrenous, a condition which hinders healing and causes pain. Even when they are situated just above the anus, it is not always possible to obtain an aseptic thrombosis. Apparently the piles are easily infected from the outside then become gangrenous.

The patient must remain in bed from four to five days, until the first bowel movement is obtained. Usually even as

chyma which was lighter in color than the rest of the organ. Exploratory puncture drew only blood. A breach was made between the hepatic parenchyma and the tumor and the latter gradually freed with the fingers.

The tumor occupied the entire thickness of the hepatic lobe and toward its upper pole communicated with the parenchyma by a large vessel. The latter was ligated and sectioned. The cavity left on removal of the growth was closed by approx

the patient left the hospital two months after the operation. Examination showed the growth to be an adenoma. W. A. BURNETT

Tajima, A. Ascaridiasis of the Biliary Passages (Ueber die Ascaridiasis der Gallengänge). Deutsche Zeitschrift für Chirurgie 1913 clviii, 303

Tajima reports thirty-three cases in which

caused by the penetration of the mature worm into the papilla of Vater. Intermittent may be absent when the duration of the biliary stasis is not sufficient for its development during the passage of the worm through the papilla of the duodenum. In many cases there is vomiting, and in a few ascariasis are expelled in the vomitus.

The treatment of ascariasis of the biliary passages is surgical. In most cases cystostomy is

LIVER, GALL-BLADDER, PANCREAS AND SPLEEN

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operation a hard mass was found in the common bile duct. This was considered to be due to the ascariasis and removed. With the aid of a fine grill-stone for

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differentiated it from chylous, hæmatic, and parasitic

lymphatic glands stasis and retention of lymph,

debent proliferation of the mesenchyma which constitutes the septa, this deficiency substituting a cystic cavity with lymph contents for the lymph gland. Such a mechanism of development would explain the formation of cysts in all regions rich in lymphatics, viz. congenital lymph gland cysts originating from lymph glands in their first period of development

On this theory Arzua suggests the following classification of cysts

Congenital cysts

Simple serous chylous.

Neoplastic

Ectodermic (epidermoid)

Mesodermic

1 Lymphatic (lymphangoma chylangoma)

2 Wolffian

Entodermic (enteroid)

Teratoma and focal inclusions

Simple and neoplastic cysts with intracystic hæmorrhage

Acquired cysts simple hæmorrhagic (encapsulated hæmatomata) parasitic, gaseous

The treatment of these cysts is purely surgical. Evacuatory puncture, simple or associated with successive injections of a coagulating fluid, and

J. E. VAN

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Neumann, N. M. Primary Echinococcosis of Bone (Primärer Knochen-Echinococcosis) *Wien. klin. Wochenschr.* 1913, 56, 145

The patient, a 30-year old man, first complained of pain in the knee in October 1911. This soon subsided, but returned one month later. In December 1911 a tumor of the knee developed. Treatment with hot air and compresses was given for six weeks but was without effect. In 1915 a tumor of the leg developed. Palpation revealed erosion of the bone and marked swelling of the talocrural joint.

Walking became increasingly more difficult. Carcinomatous round tumors finally developed in various areas of the leg. Puncture yielded pus. At the breaking down of one of these tumors, pulpy masses, small, sac-like vesicles, and clear fluid containing a large quantity of cholesterol were evacuated.

August 1915 the leg was amputated because of swelling, a high temperature and symptoms of sepsis. The soft parts were found to contain a large number of hydatid cysts. Microscopic examination revealed fat droplets, cholesterol crystals, and scolices. The knee and talocrural joint were entirely destroyed and the bone eroded. There was no new formation of bone.

(Garcov, 2)

Krogh, A. So-Called Xanthosarcoma of Tendon Sheaths (Zur Kenntnis der sog. Xanthosarkome der Sehnenhüllen). *Franks last-tedlik handb.* 1912, 107

Following a historical review and a clinical discussion of xanthosarcomata of tendon sheaths, the author reports four cases, on three of which he operated himself.

Case 1. The patient was a woman 20 years of age who had had a tumor on the anterior surface of the right leg without subjective symptoms for ten years.

It was 15 of a lobula to be gray hyaline, p. brownish-bi blood.

Case 2. The patient was a woman 56 years of age who had a tumor the size of a walnut on the dorsal surface of the wrist which was connected with the tendons of the extensor pollicis longus and the extensor carpi radialis longior and brevior and in color was partly dark brown and partly bright yellow.

Case 3. The patient was a man 48 years of age who had a small, grayish yellow tumor on the back of the distal phalanx of the right index finger which was connected with the extensor tendon and somewhat lobulated.

spleen weighed 3 lbs. Bush states that, in all, there have been thirty-four undoubted cases of primary sarcoma of the spleen.

Jepson and Albert in 1904 collected thirty-one cases of primary sarcoma of the spleen and added one case of their own. In these thirty-two cases there were eleven splenectomies and one enucleation of the tumor. Their own case was that of a girl 15 years of age. Before the operation the blood count was 5,360,000 erythrocytes and 6,120 leucocytes and the hemoglobin equaled 72 per cent. Three days after the operation the erythrocyte count had

count was 4,430,000, the leucocyte count 10,610, and the hemoglobin 84 per cent. The spleen and tumor mass weighed 256 gm and the tumor itself about 190 gm. Microscopic examination showed that most of the cells were spindle-shaped.

Wickelshausen reported a fibrosarcoma and a multiple endothelioma of the spleen both in persons 21 years of age.

In 1895 Soler-Cohen and Riesenman reported the case of a man of 42 years who had a primary small round cell sarcoma of the spleen with secondary deposits in the stomach, pancreas, omentum, mesocolon, diaphragm, left lung, and pleura and

was followed by polycythemia, the red cells numbering 9,000,000, though before operation the patient had a mild secondary anemia.

In 1867 Woodruff reported the case of a woman 35 years of age who complained of a lump in her left side below the ribs. One year later she died. Autopsy showed the tumor adherent to the transverse colon, the pelvis of the left kidney, the pancreas, the stomach, and the posterior wall of the abdomen. The growth was 18 in in circumference, firm, nodulated, cartilaginous in appearance, and in a state of degeneration.

In connection with this case the statement is made that the splenic sarcoma originating from the lymphoid structure is a lymphosarcoma that arising from the trabeculae and capsule, a fibrosarcoma and that arising from the endothelial cells along the trabeculae, a large round-celled endothelial sarcoma. Lymphosarcoma is the most common type occurring in the spleen.

Litten, Mosler, Heinrichs, Jordan, Flothmann, Collins, Krylow, Billroth, Kocher, Irlich, and Garré have all reported cases of pathologic spleens.

Bustling reported a case of primary sarcoma of the spleen in an Irish laborer 40 years of age. At autopsy the spleen was found to weigh 390 gm. The liver weighed 2,545 gm and contained metastatic nodules. The pancreas also contained metastatic nodules.

Denver in 1914 reported a case of round-cell sarcoma treated by splenectomy. Six weeks after the operation the patient was discharged in good condition. Denver stated that sarcoma is the most common tumor of the spleen.

Vaas, in 1891, reported a case of lymphosarcoma of the spleen.

In the second portion of Goldstein's article he gives the autopsy records of the University of Pennsylvania of several cases of disease of the

Marcus, in 1905 described a case of primary

splenic tumor

Other cases, such as multiple cavernous angiomas of the spleen, splenic dermoid and wandering

MISCELLANEOUS

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also mentioned Percy case in which splenectomy

roma, chondromatous, osteoid sarcoma, melanotic sarcoma, and myeloma. Often a sarcoma develops so insidiously that the first indication of its presence is the occurrence of a fracture. Fractures are caused most frequently by the myeloid round-cell type—according to Schwartz, in 30 per cent of the cases. This is a sign of rapid growth of the neoplasm. Courtin has reported a case of sarcoma of the clavicle in the newborn. Lumsden reports two cases of sarcoma of the right clavicle with fracture in persons past 60 years of age. One of the growths was a central round-cell sarcoma and the other a peripheral fusio-cellular tumor. In both cases Lumsden extirpated the clavicle *in toto*. One patient died of pneumonia a few months later. The other was still without recurrence eighteen months later.

HOMER F. DREW, M.D.

Johannesson, S. A Disease of the Patella Not Hitherto Described (*Enne bisher nicht beschriebene Patella-Erkrankung*). *Hygien* 5:21, letter 6.

The author reports a rare but distinct disease occurring in children between the ages of 10 and 15 years which in its etiological, clinical and roentgenologic aspects, somewhat resembles Schlietter's disease. This condition is unilateral or bilateral and usually develops after an injury with slight swelling and tenderness over the apex of the patella and pain in the knee. The roentgenogram shows a loosening or splintering of the bone at the tip of the patella. In one of the four cases reported the tibial spines showed the same picture. The symptoms disappear in a few weeks after immobilization of the affected part. The article is illustrated with roentgenograms.

PETER (Z)

FRACTURES AND DISLOCATIONS

Ferry, G. and Ortscheit, E. Fractures of the Surgical Neck of the Scapula (*Fractures du col chirurgical de l'omoplate*). *Arch. franco-belges d'chir.* 9:1, 225, 736.

The case reported was that of a boy of 7 years who was run over by a wagon after falling face downward with his arms extended. On examination the right shoulder was found to be somewhat higher than the left. Palpation caused extreme pain in the region of the coracoid process. The X-ray showed that the fracture began at the coracoid notch, traversed the supraspinous fossa vertically and extended to the subspinosus fossa where it described a curve with its convexity toward the edge of the acilla which it reached at a point 5 cm. beneath the infraglenoid tubercle. The distal fragment, composed of the coracoid process, the acromion and the glenoid, was displaced upward and backward.

been reported in the literature. Such fractures may

tion nor retention measures were necessary in the authors case. Drainage and early mobilization were followed by an excellent functional and anatomical recovery.

W. A. BRIDGEMAN

Kocher II, L. A Case of Transacetabular Pelvic Luxation—Central Luxation—of the Head of the Femur (*À propos d'un cas de luxation pélo-éno transacétabulaire—luxation centrale—de la tête fémorale*). *Arch. franco-belges d'chir.* 10, 2, 225, 745.

More than sixty cases of transacetabular pelvic luxation of the head of the femur have been described in the literature. Quite recently Rahmann reported sixteen new cases. There are different anatomical types. The fundus of the cavity entirely detached at its periphery is embedded in the pelvis and this embedding is almost always accompanied by a forcing back of the anterior-superior or the posterior-inferior segment of the acetabular cavity.

The clinical picture is explained by the muscular and vascular injuries caused by the fracture. The lesion denotes abnormal resistance of the neck of the femur.

The gravity of the condition depends to a great extent on the associated lesions. The treatment is complicated only when there are old unrecognized lesions; therefore in all cases of pelvic injury the patient should be subjected to an X-ray examination.

The author has seen two cases. One was that of a woman of 35 years who acquired a transacetabular pelvic luxation of the femur to the right and a fracture of the elbow in an automobile accident. The clinical and X-ray findings were almost identical with those in the second case, that of a man who following a fall from a window, suffered retention of urine and

critical fracture of the iliac wing, and contact of the tip of the great trochanter with the edge of the acetabulum. The profile of the pelvic cavity could be clearly seen near the sacro-iliac joint. Objective ly there was shortening of the left leg and stiffness and a slight kyphosis in the lumbar region. The urinary disturbance had ceased. About four fingerbreadths from the anterior superior iliac spine a large bony mass could be palpated. This was the upper part of the callus of the iliac fracture. There was undoubtedly also a fracture of the body of the

scapula are very rare; fewer than twenty cases have

CASE 4 The patient was a woman 21 years of

gray partly hyaline and partly yellowish. Return

which may become very large and cause ulceration of the skin. There are also those of the telangiectatic type which pulsate. The enchondromata and endotheliomata develop from the periosteum at

were found in abundance only in Case 1. In Case 2 they were absent. In Cases 3 and 4 there were a few. In a fifth case that of an 13 year-old girl with xanthoma tuberosum multiplex, the picture of cholesterol infiltration into the tissues was noted, but no fibromatous, and still less sarcomatous change in the surrounding tissues could be demonstrated.

originating in tendon sheaths, and that the deposit of cholesterol is not the primary cause but a secondary phenomenon. He believes that giant cells, xanthoma cells, and hemosiderin are not essential constituents and the growth may not present a lobulated structure.

These neoplasms may show also clinical differences. Many grow slowly or remain stationary while others suddenly begin to increase in size very rapidly and develop into voluminous tumors. Small tumors of the finger appear to be relatively benign, while those in the palm of the hand, on the foot, and on the forearm sooner or later reveal a more malignant character. Cases in which there were metastases to the lymph glands and internal organs are described in the literature. Recurrences are not infrequent.

The treatment should consist in early operation, thorough removal of all diseased tissue, X-ray treatment following the operation, and, in the most severe cases, amputation. Kouroussis (2)

Let C with some in shape of Tumors

Epithelioma

Cancer of the clavicle has been described as a primary tumor but is usually secondary to cancer in nearby structures such as the thyroid. Cases have been reported in which the primary growth was in the breast or stomach. According to Polakoff, malignant tumors of the clavicle are approximately three times as frequent as benign tumors, and as

rule the external part and the upper surface of the clavicle are affected. In thirty cases of primary neoplasm of the clavicle an injury preceded the development of the tumor.

The benign tumors grow slowly and often become

polating type of tumor is to be differentiated from an aortic or brachiocephalic aneurysm.

In cases of malignant tumors the prognosis is

to replace the clavicle. The surgeon must avoid injuring the subclavian vessels, nerves, and pleura. In 47 cases of malignant tumors of the clavicle collected by Angellotti there were sixty-five total extensions

metastases for the lungs

the clavicle and the surgical
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sarcoma, chondrosarcoma, etc.

the intermediary cartilage is transplanted alone it remains alive and capable of longitudinal growth has not yet been proved true in man

GIELEN (2)

Polcard, A. The General Biological Phenomena of the Evolution of Bone Grafts (*Les phénomènes biologiques généraux de l'évolution des transplantations osseuses*) *Lyon chirurg* 19 XIV, 336

Polcard states that in the early stage a bone transplant shows an interstitial substance with cavities free from osseous cells and with Haversian canals filled with new vasculo-connective tissue. This phase is followed by resorption of the bone

interior

Transplanted living bone reacts like a dead bone transplant. Transplanted dead bone acts like a fragment of living bone transplanted to an animal

as shown in reality in a graft because it obstructs the penetration of the capillary vessels and

exaggerates

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the vascular material. The latter is furnished by resorption of the neighboring bones. This explains the constant co-existence of the two phenomena of rarefaction and osseous neoformation

W. A. BIERMAN

Dollinger, B. The Surgical Treatment of Pseudarthroses (*Chirurgische Behandlung der Pseudarthrosen*) *Omniskipeds* 9 XX, 30

the same manner the retention of pieces of shrapnel, ten showed retention of bomb splinters, three were due to railroad accidents, and one was

because secondary shrinkage of the muscles may cause curvature of the extremity. The bloodless procedures do not give the desired result in war injuries and are a useless waste of time. Of the operative procedures, the best is bone suture, or possibly bone transplantation, the latter in the presence of pseudarthroses with large bone defects. Slight amputation and fistulae are not contra-indications

The most important part of the after treatment is massage and early use of the extremity

107 LÖNNMARK (2)

Fischer, W.: Interscapulo-Thoracic Amputation (*Zur Amputation interscapulo-thoracalis*) *Deutsche med Wochenschr* 923 XLVIII, 864

In sarcoma of the scapula the ablation of the left shoulder girdle and arm was carried out in the following manner

Under ether anesthesia the clavicle was divided, the vessels ligated, and the nerve sectioned in the usual manner. The incision was then carried vertically to the breast from there, at a right angle, across to the back and the lower angle of the scapula, and from there in a straight line upward over the scapula. Beginning at the starting point over the clavicle a large skin flap was then cut from the upper arm with its base above (region of the acromion) so that the

glands removed in front the major and minor pectoralis muscles were removed close to their costal insertions, as in amputation of the breast, and behind, all the muscles inserted into the scapula, as far distant from the latter as possible. The same dissection was carried out above. Finally with a longitudinal incision corresponding to the external border of the sternocleidomastoid muscle, all the glands as far as the level of the thyroid cartilage were taken out

After removal of the shoulder girdle the arm flap was reflected downward and the defect fully covered with a skin flap taken from the abdomen. A narrow margin of the arm flap later became

Willems, C. The Technique of Operation for Fracture of the Patella (Technique de l'opération pour fracture de la rotule) *Arch. méd. belge*, 1922, lxxv 744

In cases of patellar fracture in which operation

break or the knot may become undone. For these reasons Willems has discontinued its use and now employs silk worm gut. Wire becomes encysted and its presence is marked by an enlargement of the

author regards as limited. In the larger joints arthroplasties are always to be preferred but, in view of the good results which are reported, free transplantation of an entire joint or half of one seems to be justified for the preservation of a valuable finger.

The second part of the article deals with the

WILLEMS, C.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Oehlerer, P.: Bone and Joint Transplantation (*Am. d. u. G. d. Knochen- und Gelenktransplantation*). *Mon. Mit. Chir.* 1922, cxvii, 125.

In the first part of his article the author reports eight cases of plastic surgery of the finger. He took his grafts from fingers or toes. Some were autoplasmic and others homoplasmic. While Oehlerer describes the results of substitution of the middle joint as only moderately successful, the proximal joint was replaced in some cases with very good functional results. Failure in the unsuccessful

that the transplanted piece shall soon become

tion by means of the great or second toe demands

mechanical after treatment orientation as regards the articular space is made more difficult. Oehlerer believes the homoplasmic operation

ened a few centimeters, the epiphyses being spanned. In the second sitting the great toe was joined to the end of the radius by Nussli's method. The parts healed together completely and an excellent

plants have been found considerably. He agrees with Ashurst that the best material for a transplant is living bone of the same species with the periosteum attached. Since all regeneration proceeds from the periosteum or the marrow, living periosteum must be transplanted with the graft or must be retained in the wound bed. Ankylosis did not develop in any of the author's cases, but because of unavoidable necrosis of cartilage reactive changes similar to those of arthritis deformans are always to be feared. Care must be taken therefore to prevent necrosis of cartilage as far as possible by keeping the transplanted tissue

base of the thumb. In the first sitting the epiphysis did the epiphysis remain alive. He

physes such as occurs following partial destruction of the epiphyseal line by tuberculosis or a too oblique resection. As a rule there is a giving way at the site of the resection or separation of the epiphyses of the femur.

Spontaneous correction has occurred during the course of several years in cases of distinct bow and sabreization of the leg and angular flexion of 100 degrees. Two cases of genu recurvatum which were studied may explain the separation of the epiphyseal line of the femur. The fact that the epiphyseal separation occurs only in the femur is probably due to the destruction of the vascular connection between the epiphyses and the edge of the metaphyses by the resection. On the whole the process of

with internal rotation of the tibia) showed a wedge shaped epiphyses in the tibia, but no explanation could be found for the rotation.

The foot is shortened in length and talipes cavus due to atrophy of the calf muscles and the develop-

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beings — and bending is seen also in paralytics

pelvis the upper edge of the obturator foramen and the lower edge of the neck of the femur form a semi-circle.

In the cases of children resection should be done only after conservative treatment has been found of no avail. Cases in which resection failed because of gangrene of the skin flaps and failure of consolidation after prolonged roentgen ray treatment are unfavorable. The use of the roentgen-ray must be restricted to cases prognostically favorable.

SOMER (2)

SURGERY OF THE SPINAL COLUMN AND CORD

Roger H., and Pountal, L. Spinocephalic Spasmodic Torticollis and Lesions of the Vertebrae (Torticollis spasmodique infacéphale et lésions vertébrales). *Presse med. Par.* 9, 11, 285.

Marie in a systematic X-ray study of the cervical vertebrae made in 1920 found that in seven cases of spasmodic torticollis there was flattening and crushing of the vertebrae with or without decalcification. Roger and Pountal attribute the new formations of bone which irritate the spinal roots of the fifth and sixth nerves to vertebral ankyroses. In 1922 Babinski presented a case of spinocephalic origin in which it is believed there was a lesion of the center controlling the movements of the neck.

Roger and Pountal report eight cases. In one in which a cervical rib was found, two injections of novocaine into the sternocleidomastoid muscle prevented the spasm for a year. In the other cases there were bony changes in the cervical vertebrae and in one a calcification of the scalenus muscles was discovered. These cases also presented symptoms of a lesion of the pyramidal tract.

The authors believe that spasmodic torticollis has two distinct etiological factors viz irritation of

Bradford, F. H.: The Treatment of Curves of the Spine. *Federal J. Surg.* 9, 121, 16.

Bradford reports several cases of spinal curves which were examined years after the termination of successful treatment by various methods.

These cases were all treated before the days of X-ray or laboratory tests. Therefore the diagnosis rested upon the judgment of an expert skilled in recognizing the well marked symptoms viz pronounced angular curvature with a sharp knuckle, constitutional disturbances such as loss of weight, neuralgic pains, spinal or muscular stiffness, and in a few cases, a cold abscess.

All of the patients had suffered an injury in early life about the fifth, seventh or ninth year of age. Most of them had had at least a brief period of recumbency in a hospital followed by the application of a jacket and braces. Head traction was also used when the curves affected the cervical portion of the spine. In one case a bone transplant was employed.

These cases are cited to show that when curves of the spine are carefully and conservatively managed with a comparatively short period of recumbency or with ambulatory treatment from the onset, healing with little or no deformity may be expected. Operative intervention appears to be of advantage only for those who are unable to consult surgeons skilled in conservative method or those who are impatient and prefer the risk of operative

which justifies in the corpus striatum, the center of automatic movements. This process may be followed by an arthritic diathesis. H. STARR DREW, M.D.

Lenormant, C. A Case of Arthroplasty for Ankylosis of the Knee (*A propos d'un cas d'arthroplastie pour ankylose du genou*) *Presse med. Par* 1922 Vol. 677

The author reviews the history of arthroplastic operation on the knee and cites the view of Lane

should be taken into consideration. The operation described is not suited to infants, old people, or multiple ankylosis as in such cases the ankylosis tends to recur. Neither is it suitable for persons who do hard physical labor and are unable to carry out the prolonged and careful after treatment.

use an ankylosed knee were made by interposing various substances between the patella and the femur in cases in which there was an inflammatory union. The first attempts upon the knee joint

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The technique of various surgeons is different but in every method care is taken not to harm the

favorable results were obtained in fifteen cases. Cases in which the ankylosis was of a fibrous nature gave more favorable results than cases of bony ankylosis. Ankylosis between the femur and the patella was found to be better than ankylosis between the femur and the tibia.

Lenormant reports one case of arthroplasty for

with care to preserve the lateral ligaments, and interposes free fatty flaps from the fascia lata. This makes the concave surfaces more concave and the convex less convex. With lengthens the quadriceps tendon and carefully restores the ligaments and capsule so essential to strength and stability. Passive motion is begun after the tenth day. *HESTER DUFF, M.D.*

Mossbauer, A.: Deformities Following Resection of the Knee Joint in the Child (*Nach Deformitäten nach Resektion des knöchernen Kniegelenkes*) *Brit. J. Chir.* p. 2, 1922, 662

Whereas in adults resection of the tuberculous

extension was then made parallel to the inner margin of the patella and a second annular flap formed. The ankylosis was broken, the fibrous tissue removed, and the under surface of the patella and articular surfaces of the femur and tibia were modified. The flaps were then sutured together between the joint, posteriorly to the remains of the crucial

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The ability to walk is little affected even by con-

Lenormant believes that the state of health, age, social condition, occupation, energy, desire to be cured, and willingness to help

be injured proved negative. Several weeks later when the patient was first seen by Sturgis he showed a marked kyphosis of the eleventh dorsal vertebra. The X-ray revealed destruction of the inferior surface which was more marked on the

Case 6 was that of a man 72 years of age who was injured by a heavy weight falling on his shoulder. Complaint was made of pain in the mid lumbar region. The X-ray revealed a horizontal fracture of the third lumbar vertebra. Because of the patient's advanced age he was treated with apparatus

p Its disadvantages are that two incisions and 20 suture lines are necessary. The nerve may degenerate past the first suture line and become occluded by fibrous tissue at the second, a second operation thus being rendered necessary. The removal of tissue from its natural location and good supply and its transplantation to another location is often followed by necrosis of the transplant.

The use of a fascial tube is rarely necessary. If the tube is long it is apt to become transformed into

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seventh, and ninth thoracic vertebrae.

The last case reported was that of a man 3 years who fell 20 ft. striking on his head. Two weeks later an X-ray examination showed

Failure of growth may be due to coarctation,

progressive

In the sixth case, a horizontal fracture through the body of the vertebra without involvement of either articular surface and without pressure on the spinal cord, healing may result from the use of the retention apparatus, but the patient's advanced age is an unfavorable factor.

In Cases 3, 4, 7 and 8 operation is indicated as all of the patients are laboring men and have

distended lungs and are unable to cough. In addition, the chest and abdomen which is contained over an extended period of time and causes suspension of the respiratory function. It is a rather rare condition.

The reported cases exhibit certain striking and more or less constant characteristics. The discoloration of the skin which varies from dark red to purple and may be discrete or confluent, covers the face and neck and sometimes extends as far down on the chest as the third rib. Other phenomena frequently associated with the condition are brief or prolonged unconsciousness, respiratory or cardiac depression, pulmonary engorgement associated with rales, and the expectoration of blood. Convulsions are not uncommon and occur not only with the resumption of consciousness, but during several days thereafter.

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cessive tension on the suture line of the nerve has failed to regenerate. Revision should be resorted and repaired.

MARSH HOBART, M.D.

MISCELLANEOUS

guarded since optic atrophy and opaque patches of the macula have been reported.

H. A. McKEOWN, M.D.

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A soldier 24 years old, allowed a civilian to inject saliva under the skin of his left thigh and soon thereafter became ill. On the seventh day he reported to the hospital with a temperature of 39 degrees C and a pulse rate of 100. On the left thigh at the level of the flexure of the knee was a swelling under the skin measuring 18 by 7 cm. The skin over it was dark red and in places discolored bluish-red or rose color. Fluctuation and gaseous crepitation under the skin were noted. There were two distinct puncture wounds like those due to the needle of a Pravaz syringe.

When the abscess was opened foul-smelling gases and almost a glassful of turbid, purulent fluid and shreds of cellular tissue was evacuated. Examination of a smear showed abundant saliva and leucocytes, some flat epithelial cells, very many hematogenous crystals, and various cocci and bacilli.

failure and the certainty of a permanently stiffened back to the tedium of a few months' recumbency or the difficulty of securing a properly supporting brace or jacket.

Conservative treatment Bradford regards as a

In the recumbent treatment the patient should

barrelless

Whichever method of treatment is adopted, the

into a more evenly rounded curve or in the more successfully treated cases, there is restoration of the normal outline by the adap-

is thick enough to preserve its shape. This is

terry

1918 de Baskin

Fouilloud Buyati: Deformation of the Seventh Cervical Vertebra (Quelques considérations sur la déformation de la Vile vertèbre cervicale) *Rev d'orthop* 1922 1 30 113.

presence of two cervical ribs. The enlargement of the transverse process of the seventh cervical rib on both sides. The author's studies lead him to conclude that the possibility of the latter malformation should always be borne in mind

There are cases with the classical symptoms of cervical rib in which the X-ray shows only hypertrophy of the transverse process of the seventh cervical rib. There are also cases of cervical rib with symptoms suggesting spondylomyelitis. It is

Sturgis, M. G.: Unrecognized Fracture of the spine. *Boston M & S J* 1922 cxxxvii, 233

Sturgis speaks of cases of palpable fracture of the spine in which cord symptoms were absent or only temporary

Kummel in 1895 first described this type of injury and since then has reported five cases.

Sever points out that the symptoms may not be as characteristic as the present

vertebrae because of the greater resiliency of the human rib which with

period of time has been necessary in which have required open operation with autogenous bone transplantation

In choosing the form of treatment the patient's occupation, financial condition and number of dependents, and the amount of time he can give

fracture for years or till the condition.

In Case 3 discomfort in moving about followed an injury to the spine. The X-ray showed the third lumbar vertebra to be one-third the normal size. An autogenous bone splint was inserted with a very good result.

Case 4 was that of a kneman who fell with a pole which had broken at the base. An X-ray examination of the shoulder which was supposed to

Bull. F.: Embolic Gangrene of the Extremities. Particularly the Lower Extremities (Embolische Gangrene der Extremitäten, besonders der unteren). *Nord. Med. f. Læger* 1922, XXXII 137

Bull discusses the disease picture of embolic gangrene of the lower extremities on the basis of eight cases. The causes of the embolism are:

1. Thrombosis of an artery occurring centrally from an embolus due to arteriosclerosis or aneurism.

2. Thrombus formation in the left heart. This is by far the most frequent cause of embolism as shown by the fact that in half of the cases there was an old valvular defect. Thrombi in the heart are present also however in myocarditis. A large number of cases of embolic gangrene can be traced to infectious diseases.

3. Thrombus formation in the right auricle or the veins of the systemic circulation. This condition depends upon an open foramen ovale. The foramen ovale is very rarely open, however though usually in the cadaver it can be easily penetrated by means of a probe. By pressure of the circula-

embolus becomes stationary depends on its size

reduced the blood pressure in the peripheral arteries is decreased considerably and a stagnation thrombus may form. This secondary thrombus, which forms in a few hours, blocks the collaterals. A typical case is as follows:

A patient, young or old, suffering from cardiac defect or in the first years of

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either entirely absent or very much weaker than that on the other side. Often the sensitive distension can be felt in the artery and above it.

... as in the case. If the embolus is

may slip entirely into the iliac artery or become partially loosened, thus causing obstruction further down.

From his study of autopsy reports for twenty-six years the author has found that by no means all cases of blocking of the aorta lead to gangrene of the

lower extremities: collateral circulation is more easily established here than further down, by means of the subclavian, internal mammary superior and inferior internal epigastric intercostal, lumbar and circumflex iliac arteries.

artery of the aorta.

In a number of cases the embolus has been successfully removed and the artery sutured at early operation (at the latest ten hours from the beginning) whereupon the circulation was immediately restored and the limb saved. During the operation compresses dipped in sodium citrate solution as recommended by Key are used. The surgeon's hands and the instruments are also rinsed in this solution.

In order to remove the secondary stagnation plug, which may be extraordinarily long, traction must be carefully applied to the embolus with simultaneous stroking from the periphery upward over the artery. If the thrombus tears during this procedure, the artery must be opened further down and washed out from below with sodium citrate solution. If the blood does not flow out in a full stream after the artery has been opened from the center an obstruction is probably situated further up and the artery must be opened at a higher level. After opening of the vessel one must assure oneself that the pulse has returned at the periphery.

The article is concluded with detailed histories of eight cases. Rust (2)

Hocrans, J. Varicose Veins and Ulcers: Methods of Diagnosis and Treatment. *Boston M. & S. J.* 1921, XXXIV, 58

The main saphenous vein has fifteen to twenty bicuspid valves. The femoral vein usually has one valve above the entrance of the great saphenous. The superficial veins of the leg anastomose with the deep veins by a series of valve-containing vessels which pierce the fascia. The deep veins are almost never varicose and will carry the load of the superficial circulation.

Varicose veins are associated with occupations requiring heavy lifting, continued standing, and conditions of

pressure.

appear at

because of

The most

defective valves and thickened walls.

As the valves fail the veins dilate and nutrition becomes disturbed. Scar tissue replaces the smooth muscle and elastic fibers. Tortuous and sacculated

Cultures demonstrated the presence of bacilli

two ways

BLOOD

Byford, W. H.: A Simplified Apparatus for the Transfusion of Blood by the Citrate Method. *Surg. Clin. N. Am.* 191 XXXV 20

The needle used is a No. 18 gauge with the syringe end filed off. A piece of heavy rubber

patient's arm, the mouthpiece detached, and an air pump substituted. H. A. McKim, M.D.

BLOOD AND LYMPH VESSELS

Der

T traumatic aneurism of the radial artery is rare

Lisovsky: Operative Arteriotomy and Its Rationale (Die operative Arteriotomie und ihre Begründung). *Wiener Klinische Wochenschrift* 1912, 57

The author has observed frequently that gunshot injuries in the vicinity of large vessels but not causing direct vascular injury may produce extensive clots causing severe peripheral trophic injury with loss of nerve function. The peripheral pulse

Lisovsky did an operative arteriotomy, that is, he freed the radial artery from the surrounding cicatricial tissue for a distance of 6 cm. The artery immediately became filled with blood, the peripheral pulse again became powerful, and in two months all of the trophic disturbance had disappeared entirely.

At examination nineteen months later the hand was found to be normal. Petrov (2)

Koyano, K.: Clinical and Experimental Thrombo-Endarteritis Obliterans. *Acta Medica et Biologica* Kyoto, 1922, 1, 101.

ABOC
The so-called purulent focus and giant-cell focus

alteration with gas
the influence of pathogenic bacteria the results were negative. H. A. McKim, M.D.

sac measured 5 by 3 cm.

subjected to diseases dependent on retardation of the venous circulation. In 90 per cent of all cases of thrombophlebitis the thrombosis occurs in the left leg; milk-leg is more common in the left leg, and in cases of failing circulation the left leg is more apt to become edematous than the right leg.

WALTER C. BIRLEY, M.D.

ROENTGENOLOGY AND RADIUM THERAPY

Maer J. W. The Effect of the X Ray on the Germ Cells. *J. Radiol.* 1922, 14, 320.

Experiments were carried out to ascertain the specific effect of roentgen rays upon the diadoming cell and the modification of the germ cells by external means. Small fruit flies were used because their egg cells have been minutely studied and accurate knowledge has been gained relative to

Preliminary experiments showed that the sterilization dose of roentgen rays was small as compared with the lethal dose for female flies, so that flies could be sterilized without apparently affecting them in any other way. The females were rayed with a dose just under the sterilization dose soon after

rayed pairs were kept. It was found that the offspring of the rayed flies differed both numerically and in inherited characteristics from those of the controls. These changes are explained on the basis of changes in certain of the chromosomes of the mitotic cells.

The author sums up the results of his experiments as follows:

A specific effect of the roentgen rays has been shown in the diadoming germ cell, which leads to a specific modification in the inheritance of the offspring.

ANONIMUS HARTROD, M.D.

Farrell, C. E. An Interesting X Ray of Study of a Foreign Body Honey Locust Seed, in the Right Bronchus. *Krankh. M. J.* 9, 21, 529.

In the case reported a honey locust seed was presumably swallowed by a 2-year-old child. Aside from a violent fit of coughing lasting for several hours, no other untoward symptoms were noted for two days. The roentgen ray examination proved negative although in control exposure a similar seed placed under the patient was plainly visible. Examination of the throat revealed laryngitis, a condition which was considered a sufficient explanation for a slight rise in the temperature on the second day. At that time slight dyspnea and irritability also developed and the existence of the child's parents that something be done led to a bronchoscopic examination under general anes-

thesia. The seed was discovered in the right bronchus and removed without difficulty. An uneventful recovery followed.

The conclusions drawn by the author from this case are as follows:

1. A foreign body in the air passages may not cause any symptoms during the first twelve hours.

2. When the presence of a foreign body is indicated by the history an exploratory bronchoscopic examination is justified. It can cause no harm if properly done.

3. It is justifiable to give a general anesthetic in order to keep the child absolutely still and to relax the laryngeal structures to the utmost.

4. It is best not to attempt to locate a foreign body unless bronchoscopic extraction is contemplated.

ANONIMUS HARTROD, M.D.

Hobbery, M. J. Positional Anomalies of the Gastro-Intestinal Tract. *J. Radiol.* 1922, 14, 364.

It is generally accepted that there are variations of position and relationship of the abdominal viscera from the usual conception of the normal. The

variations in the position of the organs during embryonic life. Variations in these normal processes may result from excess or defect.

The cases in which the first 10 feet or so of the jejunum pass to the right are worth notice as this

may cavity or pass at any point along its development path. The cecum may be found on the left side.

The rotation of the colon may be deficient or excessive. In the first event the ileum enters from the right and posteriorly and in the latter anteriorly. In abnormal rotation combined with fixation the

position of the cecum may be deficient or excessive. In hypodysenteric the cecum lies anywhere between the region of the liver and its normal site. If it goes beyond its normal position into the pelvis or develops such proportions that it is possible for it to be in the pelvis, it is said to be hyperdysenteric.

are formed. Calcification may occur. The blood stagnates and the long column of blood increases the pressure on the walls. The vein may rupture.

lower leg

The simplest test of incompetency of the valves is the Trendelenburg test, viz. suddenly lower a leg that has been emptied of blood by elevation. If the finger is pressed over the saphenous opening while the leg is elevated the vessels remain collapsed when the leg is lowered and fill with a shock when the pressure is released. If the finger pressure is not released and the vein fills rapidly from below there is leakage of the valves in the perforating branches to the deep veins. The condition of the lesser saphenous vein may be tested similarly by applying pressure at the level of the knee.

The most common type of leg dilated, tortuous varicose veins is most evident on the lower side and test is cured.

the call the swelling vein seems to be lying below the constriction. A complicating ulcer often diffuse or multiple is usually present and may be the first sign to attract attention to the

difficult and show a relatively low proportion to cure.

A rare type includes dilatation of the lesser saphenous vein alone and of the veins of the outer leg and thigh, independent of the saphenous system. Palliative treatment never alters the basic

below the knee. Extension of the arterial veins of the calf controls incompetent perforating veins. When the perforating veins are competent, extension

of the enlarged superficial veins alone will cure the ulcer. A very large and indurated ulcer may be excised, the wound edges approximated, and the remaining raw surface covered with a skin graft. Incompetent perforating veins in the calf must be ligated and the ulcer dissected to sound tissue. It may be necessary to perform the operation in several stages.

Acute phlebitis in veins previously normal should be treated conservatively. Convalescence

SURGICAL DIAGNOSIS, PATHOLOGY AND THERAPEUTICS

Goodman: If: Ulcer of the Leg, Its Localization as a Point of Differential Diagnosis. *Arch. Surg. & Syph.* 1922, 1, 70.

Of forty-four patients with ulcers of the lower part of the legs, twenty-five had an ulcer on the right leg, twenty-one an ulcer on the left leg and thirteen ulcers on both legs.

In the cases of ulcer on the right leg the Wassermann reaction was positive in thirteen and complementary in two, and negative in ten. A positive clinical diagnosis of syphilitic ulcer was made in only four cases.

arteries of the leg

In the cases of ulcers on both legs the Wassermann reaction was positive in two. A clinical diagnosis of syphilitic ulcer could not be made in any case.

These cases indicate that ulcers of the right leg are left side of the leg, the left leg being more of a

the body show wide variations. The size and extent of a growth have some bearing upon the effects of irradiation but, next to its type, the condition of the tumor and its neighboring tissues determines the success or failure of such treatment more than any other factor. Infected tumors respond unfavorably

However, following the proper selection of cases some of the most advanced growths have yielded to irradiation in a remarkable way. As with the primary tumor success depends upon the type, size, extent, and condition of the growth. Regarding metastases, the author states that he has been fortunate in observing favorable results following the application of the gamma rays of radium to bone metastases from mammary cancer. There appears to be more than an even chance of relieving pain, and

constitute important factors in the process of cure.

Regarding the relative merits of the roentgen rays and radium, clinical observations seem to indicate that the effects of the roentgen rays and the gamma rays of radium are the same. The effects of

which is called hemangioma. Although the response to irradiation varies widely the results indicate that the roentgen rays and radium have a very specific applicability. Lymphosarcoma, metastatic teratoid tumors of the testicle, certain embryonic tumors of the kidney in children, and a

period, frequently respond promptly but the results vary. Basal-cell epithelioma is very susceptible to radiotherapy. There is a large group of ulcerating growths of the skin and mucous membranes in

which is very limited. A most conservative

after operation is, perhaps, one of its most important applications. Certain cancers of the breast thus treated have apparently been cured; others have regressed, and in some cases inoperable conditions have been made operable. Such observations lead to the conclusion that during the early stages of the growth the use of these agents is indicated in conjunction with operation. Their postoperative application is becoming a routine procedure and it is reasonable to believe that an increased number of permanent cures will result. The pre-operative treatment of mammary cancer is much less popular but it appears to the author to rest upon a more scientific basis than the postoperative application. From his own observations he believes that the unknown effects of the operation are thereby minimized. The general adoption of pre-operative treatment in mammary cancer will soon show, he believes, that the field of applicability of the radical operation should be much restricted.

The use of the roentgen ray and radium in the treatment of primary bone sarcoma is in the experimental stage, but a few facts have been definitely established, and results suggest that, with greater accuracy of diagnosis, an improved technique, and more frequent resort to the use of these agents prior to operative procedures, more substantial progress will be made. In the malignant osteogenic tumors, which are usually of the periosteal type, clinical results have been practically negligible except in one or two instances. In the giant-cell tumors, or relatively benign giant-cell sarcoma, varying in type from those which closely resemble the osteitis fibrosa or bone cyst to those in which local extension and recurrence show considerably malignant qualities, progress has been both encouraging and disappointing. Radium has been applied to the wound after curettage to prevent recurrence, and in numerous instances the local recurrences after operation have completely disappeared following surface irradiation or the implantation of radium into the tumor.

of cases. The most important factor in the selection

The process of fixation is a physiological fusion of

part or in whole can be expected

The chief sites for variations are the circum hepatic

mass on palpation and percussion sometimes gas may replace the bowel contents causing tympany, and both these conditions may be misleading if the location of the colon is not known

ADOLPH HASTORF, M.D.

Wetherbee W. D. The Dosage and Technique in the X Ray Treatment of Götter Tuberculous Glands of the Neck, Tonsils, and Adenoids. In *J. Roentgenol* 1922 2: 2 12, 54

of two weeks, the number of exposures depending

at the same time causes an overton and evacuation of its contents. In thirty of thirty-two cases hemolytic streptococci and staphylococci were eliminated from the crypts four weeks after one massive dose of the roentgen rays

Stone, W. S. The Present Field for the Use of the X Ray and Radium in the Treatment of Malignant Neoplasms. *Am J Roentgenol* 1922 2: 2 50

During the last seven years the author has had under observation over 10,000 cases of neoplastic

area 2 in wide from just above the external auditory meatus down to the hyoid bone

In the treatment of götter the same factors are used with an area of exposure extending from just above the external auditory meatus down to the

the tonsils, and the tonsils. An examination of the throat in cases of cryptothroat götter almost invariably reveals chronic infection of the mucous membrane and tonsils. It is therefore essential that the infected tonsil and

operation unnecessary. Of the established new phases of radiotherapy

formed primarily, and if the breast is removed the axilla should rarely if ever be opened following the radiation.

exophthalmic goiter has a resistance of .000 to 1.000 ohms. The rapidity of the amperage and the part of the body receiving it are important factors in the lethal dose.

No uniform technique has been established in deep roentgen-ray therapy. That adopted by the author is as follows:

If the current passes only through the arm and upper cerebrospinal area and the heart escapes the current continued persistent artificial respiration, even some time after apparent death may restore life. A strong faradic current is a valuable adjunct.

have been covered. Five milliamperes of current and a 0-in spark back-up are used at an 8-in target skin distance and the ray is filtered through .0 mm of aluminum. From twenty to thirty minutes exposure is given each field. The axilla on the affected side is usually treated with a radium pack, 6 by 6 cm, placed at a distance of 3 cm, the radium being filtered through .5 mm of silver and 1 mm of brass, giving from 1,000 to 1,200 mpm-hrs. Two to four weeks after the surface radiation, where cell proliferation has been checked, 10 mpm radium needles are embedded about 3 cm apart.

As a usual procedure fibrillation of the cardiac muscle quickly follows. Artificial respiration will not resuscitate a heart after general fibrillation.

The dry body without a good conductor connecting to the feet or elsewhere, has a very high resistance momentarily but a continued contact

operative irradiation even in advanced cases.
 LOUIS HARRING, M.D.

INDUSTRIAL SURGERY

Miller S. R. Injuries by Electricity, Their Prognosis and Treatment. *Internat J Surg.*, 1923, 33: 255-267.

The volt is the unit of electromotive force, the ohm is the unit of resistance to the volt, the ampere indicates the amount of current delivered and is the volt divided by the ohm. The ampere determines

electrocution. One electrode is placed on the unshaven head and the other on the calf of the leg. The electrodes, wet with saturated salt solution, are molded to fit the part. The head, trunk, arms, and legs are securely fixed by broad straps to chair to hold them during violent muscular contraction. The current is applied at the moment of maximum expiration. An alternating current of 1,200 volts is given for five to seven seconds, reduced to 50 volts for thirty seconds, raised to high voltage for three to five seconds, reduced to low voltage for sixty seconds.

radiologist.

ABRAHAM HARRISON, M.D.

Merritt E. A.: Recent Experiences in the Treatment of Mammary Carcinoma by Means of Heavily Filtered X Rays. *J. Radiol.* 192 10,373

pect better results from the roentgen-ray therapy administered as just described than from any other form of treatment. *ABRAHAM HARRISON, M.D.*

Bogda, R. H.: Ante-Operative Radiation of Carcinoma of the Breast. *Am. J. Roentgenol.* 1922, 14 53

A sufficient number of cases of carcinoma of the

and axillary spaces, and, when deemed best, the opposite breast, were rayed. Thus a patient received nine or more hours of roentgen-ray treatment given as rapidly as possible. It was found, however, that for the average patient a maximum of one and one-half hours was sufficient for any one day. The production of roentgen sickness was a factor which in-

danger of metastases

the extent of the metastases must be taken into consideration before it can be decided whether a cure is to be expected or whether palliation with

without a single exception. Their decrease in size and induration was synchronous and progressive, beginning within ten days. Recurrent nodes the size of small marbles disappeared in a month leaving no trace whatever. The rapidity with which palpable

same opportunity of eradicating the remaining cells as the same procedure before operation, for

removal of demonstrable lesions in inoperable mam-

The treatment of carcinoma of the breast by

tion. Others showed the formation of a pleural exudate with symptoms of pleurisy of a mild type. In still others there were no demonstrable effects upon the lungs.

In certain unfavorable cases the technique fol-

radical operation may not be necessary

destroyed, that is, when cell proliferation was checked and only latent cancer cells remain. In

certainly superior to any form of operation per

necessary to accomplish this purpose. It is quite clear that making the initial incision in the plaintiff's abdomen was a proper and necessary step along this line, and the mere fact that the plaintiff might have believed or had been advised by her family physician that her condition was caused by a laceration of the uterus did not relieve the operating surgeon of the duty of discovering for himself the cause of the physical defect he was called on to remedy.

... ..

tained or given, in extending the operation to remove and overcome such conditions.

J. A. CARTAGNARO

Negligent Treatment of Fracture. *Parkish v. Morrison* (Kan.) 805 Pac. R. p. 651.

The supreme court of Kansas stated that the plaintiff's right leg was broken near the ankle, and the defendant was called to treat the injury.

her right foot turned outward at an angle of nearly 90 degrees.

An orthopedic surgeon testified that in setting fractures the limb must be placed in a normal position, immobilized and held firmly in its normal position until the bones have an opportunity to unite, outward rotation of the foot should be corrected whether it is possible to obtain a roentgenogram or not.

The defendant's visits to his patient continued for about three weeks before he discovered that her foot was everted, by which time the cartilaginous substance had to its normal

sleeping only three or four hours in the twenty-four

Liability as Partners—Administration of Anesthetic by Nurse—Evidence. *Cook v. Coleman et al* (N. J.) 121 S. E. R. p. 750.

Three physicians were sued as partners doing

remedy a laceration of the perineum suffered at the same time. A fistula shortly thereafter made an opening between the vagina and the rectum. The plaintiff contended that an operation in the region of the fistula was neither necessary nor authorized, while the defendants contended that it was both authorized and necessary and that the fistula was the result of unavoidable infection. After an unsuccessful effort to close the fistula, the plaintiff was taken to another hospital, at which after the infec-

... ..

The defendants, though not actual partners, may be held to liability as if they were, on proof of their

to prove liability as partners.

The plaintiff presented evidence that

causes were then present or not, but she thought they were not. They said they were, and that the ether was necessary even on the

The voltage of some of the common commercial wires is as follows.

Local telephone and telegraph. 4 to 30 volts long

a sharply defined area of necrosis 7 cm long and 1 cm deep

as follows

Case 1 A Eisenman, standing on the lower arm of

time for removing paint and standing on a wire

Reuter F: Another Fatal Case of Injury to the Skull from Electric Current (Ein weiterer Fall von tödlicher Markstromverletzung des Schädels). *Ztschr f d ges gerichtl Med* 1911, 365

The author reports the case of a laundress who was killed in an attempt to clean a transforming chamber which was shut off by a grating and into which entered three unprotected rotary current cables of 5,000 volts. A short circuit immediately resulted. The dead body was discovered lying obliquely face down, the head in contact with a ledge of bare metal.

The most important finding at autopsy was a

LEGAL MEDICINE

Implied Authority & Malice Exemplary Inclusion and Exclusion Operations. *King v Carey (Olla)* 204 *Pa. R.* p 370

This was an action for damages for an alleged unauthorized operation. The plaintiff had been married twice and had one child by her first husband.

lastly without objection
were asked questions tending to prove that the fol-

GYNECOLOGY

INTERVIEW

Stacy L. J. Anteponition and Retroponition of the Uterus: Incidence and Symptoms. *J Am M Ass* 19: 3 (July), 793

One thousand consecutive case records of unmar-
ried women between the ages of 15 and 45 years, who
gave no history of pelvic infection, pelvic tumor,
pregnancy, or other pathologic or physiologic factors
which could have affected the position of the uterus
were studied to determine the relative frequency of
displacements of the uterus and associated symptoms
which could be surmised to such displacements. The
cases in the series represent the common type for
the series of 1,000 cases retrospedion as was found in

3 Dysmenorrhea is about 13 times as common in women with retroposition as in those with ante position.

4 Women with retroposition had intermenstrual headache slightly more often than those with anteposition.

5 There seems to be little difference in the character and incidence of symptoms as a whole in cases of anteversion as compared with cases of retroversion of the uterus.

6. Congenital retroposition of the uterus associated with backache, dysmenorrhea, etc. is usually part of a general picture of deficiency in development.

Mock, H E. So-Called Traumatic Displacements of the Uterus. *J Am Med Ass* 9 June 1917

In this article the author discusses true and false claims of disability due to uterine displacement ascribed to injury pointing out the great responsibility assumed by a physician when he informs his patient that certain existing pathologic conditions are the result of trauma.

From the shavers to questionnaires sent to industrial commissions to chief surgeons of railroad and street railway corporations and to insurance com-

such symptoms are present surgical measures frequently fail to give relief by restoring the uterus to the normal position. Attention is called to the normal mobility of the organ and the anatomical and physiological factors, especially the intra-abdominal pressure.

positive
falls o
retro
pressure serving only to force the uterus into ante position. In the congenital cases of retroversion, on the contrary, it is reasonable to assume that the position is accentuated by continued intra-abdominal

practitioner traces the condition by the history to an alleged injury without thinking of the medico-legal aspects of the case. Frequently the patient dates her trouble from

examination was complained of. The nurse was shown to have had considerable experience in such

A female plaintiff n

1

the surgeon's view the soundness of his opinion thoroughly

the physical incapacity to carry and deliver a child is a question of medical and surgical science as to which she is obviously incompetent to express an opinion. The case was remanded for a new trial. J. C. CARTWRIGHT

GYNECOLOGY

UTERUS

Stacy, L. J. Anteversion and Retroversion of the Uterus: Incidence and Symptoms. *J Am M Ass* 1922, LVIII, 793

One thousand consecutive case records of unmarried women between the ages of 15 and 45 years, who gave no history of pelvic infection, pelvic tumor, pregnancy, or other pathologic or physiologic factors which could have affected the position of the uterus

ing routine examination in 303 (30.3 per cent) a percentage of especial interest in its corroboration of this

cases in which retroversion is discovered on routine examination, and on the fact that in cases in which such symptoms are present surgical measures frequently fail to give relief by restoring the uterus to the normal position. Attention is called to the normal mobility of the organ and the anatomical and physiological factors, especially the intra-abdominal pressure, which operate in preventing the congenital position. Because of these factors trauma due to falls or injuries is regarded as an unlikely cause of retroversion, a sudden increase of intra-abdominal pressure serving only to force the uterus into anteversion. In the congenital cases of retroversion, on the contrary, it is reasonable to assume that the position is constituted by congenital factors.

anteversion
From

10 patients
uterus of

3. Dysmenorrhea is about 1.5 times as common in women with retroversion as in those with anteversion.

4. Women with retroversion had intermenstrual backache slightly more often than those with anteversion.

5. There seems to be little difference in the character and incidence of symptoms as a whole in cases of anteversion as compared with cases of retroversion of the uterus.

6. Congenital retroversion of the uterus associated with backache, dysmenorrhea, etc., is usually part of a general picture of deficiency in development.

Surgical measures, unless nature intervenes

Mock, H. E. So-Called Traumatic Displacements of the Uterus. *J Am M Ass* 1922, LVIII, 797

result of trauma

From the answers to questionnaires sent to industrial commissions, to chief surgeons of railroad and street railway corporations, and to insurance companies

an alleged injury without thinking of the medico-legal aspects of the case. Frequently the patient

present trauma may cause exaggeration of the condition with subsequent symptoms, or the physician on examining a woman who is complaining of symptoms following an injury may find the displacement, and ascribe all the symptoms to that condition though they may be due to causes very remote from the uterus.

physician and her attorney. Permanent uterine displacements are never due to trauma per se.
F. L. CHEVRE, M.D.

New Operative Procedure in the

The vaginal portion of the cervix is incised all
— — — — —

the anterior surface of the vaginal portion of the cervix. The colpotomy incision is then closed, the meso-uterine ligaments and the levator muscles being included in the suture. Continuous urinary incontinence frequently necessitates a pyramidal plastic.
FALLOU (Z)

Mayo, W. J.: Myomectomy for Myomata of the Uterus. *Kentwood Med.* 9, 2, 222, 225.

A retrospect of the various procedures recom-

one of the best understood and safest procedures of modern surgery. This retrospect teaches valuable lessons and shows that procedures obsolete or almost forgotten are still applicable in small but selected groups of cases and are fundamental to our knowledge of the subject.

The menstrual cycle, aside from its function in reproduction, has a marked effect on the female

parts are aggravated in young women by opera-
— — — — —

the continuance of its internal secretion and its effect on the production of menstruation is second only to the generative function. Even if repro-
— — — — —

the menstrual function is lost.
The reproductive and menstrual functions are sacrificed not only by removal of the ovaries but also
— — — — —

treatment was required. Statements with regard to the value of these methods must ever be construed with the facts in mind.

The common indications for the treatment of uterine sarcomata are hemorrhage — — — — —

Too often the decision to operate in cases of tumor of the uterus is based on the possibility of malignant degeneration. In the Mayo Clinic such de-

considered now. In none of the cases reported were the recurring tumors large because the patients, knowing their former condition, were on the alert. Hysterectomy was usually performed at the second operation but the patient had been carried along by the myomectomy to an age at which a radical operation is of less consequence.

It is impossible in many cases of myomatous

woman under 35 years, and demands an excellent reason in a woman under 30.

tive of the cause of death or the length of time

investigation was made. As only 75 per cent of the patients were married, a total of forty-three living children is most encouraging. Twenty-three married women who were sterile before the operation had one or more children after the operation.

Twenty-three pregnant women were subjected to myomectomy because of acute degenerative changes in myomatous tumors and all lived. Sixteen of the pregnancies were intra-uterine. Eleven of the patients went to term and bore living children; two miscarried within a week after the operation, but in each case the miscarriage was imminent at the time of operation, and three showed signs of impending miscarriage previous to the operation which subsided after the removal of the tumors. Seven women had extra-uterine pregnancies at the time the myomectomy was performed, in all of these patients the fetus had ruptured and the fetus was dead. The myomectomies and the operations for the extra-uterine pregnancies were performed at the same time in these seven cases; it seemed possible that the presence of the tumors was responsible for the ectopic pregnancies. One of the patients

of the uterus and one ovary and tube and made a plastic restoration which was followed by the normal continuance of menstruation for years.

If the patient is approaching the menopause especially if hemorrhage is the chief indication for

developed with the growth of our knowledge of myomata of the uterus is sufficient to demonstrate the dignified and unassailable position of myomectomy during the reproductive life of a woman.

Madewey H. E.: Syncytioma (Atypical Chorionoma) of the Uterus Terminated by Acute Peritonitis. *Surg. Gynec. & Obst.* 92: 220-227, 1927.

Chorionoma, a tumor which develops from the ectodermal elements of the chorion of the fetus, varies widely in its clinical course and its gross and microscopic appearance. In many cases it is an extremely malignant tumor and metastasizes extensively through the blood stream. In other cases in which the early clinical and microscopic picture is much the same, it retrogresses spontaneously or is cured by curettage.

In the benign type of chorionoma, acute infection of the uterus is not an infrequent complication which often leads to septicemia or peritonitis.

As yet there is no certain method of determining the benign from the malignant types of chorionoma to assist in the choice of the surgical procedure.

The case reported by the author was that of a woman who had had an abortion with profuse hemorrhage and had bled intermittently up to the time she entered the hospital one year later. She was then anemic and had a slight fever. Subsequently she developed symptoms of sepsis and

in many the secondary operations were performed elsewhere it was difficult to obtain accurate pathologic data, but the majority were performed for inflammatory disease and in no case was a malignant condition found. In the cases in which the second operation was performed for recurrence of the myomata the use of radium would probably be

ADnexAL AND PERI-UTERINE CONDITIONS

Graffagnino, F. Ectopic Pregnancy. *Am J Obst & Gynec* 1912 iv 48

report does not state how many patients had had miscarriages only.

The interval between the last pregnancy and admission into the hospital for the ectopic pregnancy was noted in ninety-eight cases treated at the Charity Hospital; the shortest interval was two months and the longest twenty nine years. At the Johns Hopkins Hospital the shortest interval was

between one and seven years in ninety-eight cases

not stated in the report by Lewis. In the Johns Hopkins Hospital it was 903 in 22,883 cases (3.9 per cent) for a period of ten to seven years, and in

operation, as compared with forty-five (4.85 per cent) at Hopkins and nineteen (10.2 per cent) at the Woman's Hospital. The Cook County report does not note this point. Sixteen of the 186 patients (8.6 per cent) reported loss of blood for a specific

recorded in 170 cases. Ninety-two patients (54.1 per cent) were white women, and eighty (48.6 per cent) were negroes. In the Johns Hopkins Hospital 902 (66.66 per cent) of the patients were white women and 101 (33.33 per cent) were negroes.

complained of pain, and sixty (32 per cent) of bleeding. At the Johns Hopkins Hospital the corresponding figures were 84 and 31 per cent. At the Woman's Hospital 66.6 per cent complained of pain alone or pain with bleeding, while at the Cook County Hospital about 85 per cent complained of

patients
they had
with 34

per cent at the Johns Hopkins Hospital, 34 per cent

In the record of the Charity Hospital the age of the patient was given in 187. The youngest patient was 17 years and the oldest 48. At Johns Hopkins the youngest patient was 15 and the oldest 45, while at the Woman's Hospital the youngest patient was 17 and the oldest 4. The report of the Cook County Hospital states that two patients were under 20 years and five over 40. In all the hospitals, however, the greatest incidence of the condition was in women between the ages of 25 and 35 years.

of five years before the ectopic pregnancy. In 169 Charity Hospital patients who had been pregnant before 11 (5.9 per cent) had had only miscarriages, as compared with 9 per cent at the Johns Hopkins Hospital and 17 per cent at the Woman's Hospital. The Cook County Hospital

out that a hemoglobin determination is of doubtful value in a diagnosis of ectopic pregnancy since there is no marked drop until after forty-eight to seventy-two hours.

In the Charity Hospital thirty-nine of a series of

temperature on admission in the series of 86 cases was under 10 degrees F in 167 cases (80.9 per cent) while the pulse on admission in a series of 174 cases was under 30 in 150 cases (86.2 per cent). In three cases the pulse was so rapid it could not be counted and in one case it was imperceptible. At the Johns Hopkins Hospital the temperature was under 101 degrees F in ninety-one of a series of 80 cases, and the pulse less than 150 in 91 per cent of the same series. At the Woman's Hospital, in a series of 100 cases, the temperature was under 101 degrees F in ninety-seven, and the pulse under 150 in the same number. At Cook County Hospital 94.8 per cent of the entire series of patients had a temperature under 101 degrees F but the pulse rate was not noted.

The pre-operative diagnosis was recorded in only eighty-four cases (45.2 per cent) at the Charity Hospital. Thirty-three cases were correctly diagnosed, three were diagnosed a probable case of ectopic pregnancy and two were diagnosed as misinterpreted ectopic pregnancy. The diagnosis was correct therefore in 44 per cent as compared with 46 per cent at the Johns Hopkins Hospital, 53.0 per cent at the Woman's Hospital, and 59 per cent at the Cook County Hospital.

At the Charity Hospital the operation was vaginal in only eleven cases (5.9 per cent) as compared with 8 per cent at Johns Hopkins, and 7 per cent at the Woman's Hospital. The Cook County Hospital report, which treats only of diagnosis, gives no definite figures.

The location of the pregnancy was stated in the records of 39 cases treated at the Charity Hospital. Eighty (57.3 per cent) it was in the right tube and in fifty-eight (41.8 per cent) in the left. There was one case of bilateral.

The pathologic report was positive in fifty-two cases and negative in six, though even when the report was negative the operator was still sure after the operation that he was dealing with an early

was secured out of a possible eighty-one. The pathologic reports for the other hospitals are not available.

In the Charity Hospital series of 186 cases there were twenty-three deaths (12.3 per cent) which is higher as compared with 4.3 per cent at the Johns Hopkins Hospital, not quite 1 per cent at the Woman's Hospital, and 8 per cent at the Cook County Hospital. As is to be expected, the highest death rate prevailed at the two general hospitals where the patients are of a lower social status, where it is more difficult to secure adequate histories to justify very early interference and where a greater number of patients are admitted in a moribund condition.

C. H. Davis, M.D.

Moore, G. A.: Interstitial Pregnancy with Report of a Case Operated upon Before Rupture. *Boston M & S J* 9:3 October 24.

The case reported is as follows:

The patient, a woman 27 years of age, had been married five years. Her husband is living and well. She had one child living and well and no other pregnancies. She had had the usual diseases of childhood and eight years ago a peritonitis, but no other illness. The catamenia had been regular and normal until recently. For the past several months it had been very profuse every other month. There was no dysmenorrhea. September 9, 1910, menstruation was excessive in amount but not prolonged. The October period was normal. In November a profuse flow began about the twenty-eighth day and continued a few days into December. Flowing began again January 1, 1911, was very profuse, continued for five days, and then ceased for five days. Since that time January 2, there had been an almost constant but not profuse flow. Walking or turning quickly in bed caused a sharp pain in the left side of the abdomen low down. There was no discomfort in sitting. Since January 6.

There was no discomfort in sitting. Since January 6.

There was no discomfort in sitting. Since January 6.

There was no discomfort in sitting. Since January 6.

larged, and the fundus tipped toward the right. Extending upward from the left side of the fundus and connected with it was a firm tender mass about the size of a tangerine orange. The tubes and ovaries were apparently normal.

not be defined on palpation. A rounded mass

six weeks previously led to a second diagnosis of interstitial pregnancy.

from the cervix anteriorly. Posteriorly a large, solid roundish mass occupied the pelvis pressing on the rectum behind and causing the anterior displac-

achment of the tumor upon the fundus seemed to involve only the left cornu. A conservative operation was therefore decided upon. The tumor was removed by a wedge-shaped incision in the body of the uterus, the left tube being included. The uterine cavity was not opened during the operation. The incision in the uterus was closed with double No. 2 kodans catgut and the broad ligament was sutured with a continuous suture. The abdomen was closed in the usual way. Convalescence was uneventful and the patient was discharged March 2, 1920. E. L. CORVILL, M.D.

A large, irregularly shaped, fleshy, lobulated mass, 10 cm. in diameter, was removed from the uterus.

Croft, E. O. An Operation for the Removal of a Living Extra-Uterine Child at Full Term. *Lancet*, 1922, *case*, 350.

The patient, a woman 31 years of age, was admitted to the Hospital for Women, Leeds, November 5, 1921.

She had had no menstrual periods for several months but had had no pain in the lower abdomen, and remained in bed two months. In June a severe attack of abdominal pain with constipation and slight jaundice suggesting gall-stone colic confined her to bed for several weeks. About the end of July when she got up, she had some vaginal bleeding for one day. The show was repeated a month later and again in three weeks. During the subsequent ten days before admission to the hospital there had been no bleeding. Since February the abdomen had gradually enlarged and the patient had noticed the enlargement more particularly since the attack of colic in June. There had been a little edema of the legs during the last two months. Micturition remained frequent and there was constant troublesome constipation.

When the patient was examined in the hospital the breasts showed the usual signs of pregnancy. The abdomen was irregularly enlarged to a size corresponding to about the eighth month of pregnancy. The outline of the pregnant uterus could

parts could be felt, the umbilicus was 15 cm. in front, and the breech below in the pouch of Douglas. On the left side the hand could be passed

forward in the uterine cavity. It was obviously impossible to remove the placenta in view of the danger to the adjacent structures and the difficulty of ligating the vessels. The cord

was ligated and cut off short and the stump dropped into the sac. The sac was marsupialized by suture to the lower angle of the wound, and the cavity loosely packed with gauze. The remainder of the

membranes remaining intact.

There was some shock following the operation, the pulse remaining at about 120 for a few days.

the wound had healed except around the drain. On the twenty-seventh day the temperature rose again. The remains of the packing were then removed, offensive discharge and small portions of placenta escaped and the temperature fell. From time to time the cavity was irrigated and small fragments removed. On January 17 (the seventy-first day) under ether anesthesia the drain hole was enlarged to admit the finger and the remaining mass of placenta lying loose in the cavity was extracted, the cavity freely irrigated and a large tube inserted. The temperature rapidly subsided and the scars quickly healed after removal of the tube.

E. L. CORVILL, M. D.

EXTERNAL OBITERIAL

Neel, J. C. The Treatment of Cystocele. *J. Am. M. Ass.* 19, Dec., 1915.

and rectum. The cervical penetration is located about the center of the most dependent portion and at the weakest point. Since the endopelvic fascia is the true supporting structure, cystocele and prolapse result from disturbance of the function of that

uterine prolapse (3) cervical, clinically an enterocele (4) postcervical, clinically an

the extent of the planes involved are the important points for consideration. During the childbearing period the radical cystocele operation with posterior repair and abdominal suspension of the uterus has proved most satisfactory and does not

interfere with subsequent pregnancies. Following the childbearing period the uterus becomes a liability rather than an asset. As the position of the bladder does not depend upon the position of the uterus, the position of both the uterus and bladder must be considered in cases of prolapse. It is rarely necessary to leave a portion of the uterus for menstruation since the theory that the life of the ovary depends on the menstrual function is far from being established. In these cases the usual procedure should be a vaginal hysterectomy since this allows the best reconstruction of the vaginal vault. In the repair of the cystocele the fascia should be overlapped. In fifty-seven cases operated upon for various forms of prolapse there has not been a single recurrence of the cystocele.

H. W. FINK, M. D.

Ward, C. C. The Treatment of

709

In large rectoceles the usual operative technique of Emmet or Hegar does not give a permanently satisfactory result. In these cases a technique may be employed which ensures a cure by treating the rectocele as a hernia and anchoring the rectal pouch in a higher position on the undamaged portion of the vaginal wall where the fascial supports of the canal are intact. The operation consists first in

wall which entered into the formation of the rectocele is then cut away and the operation completed by a penoscaphy in which the pubo-coccygeal portion of the levators is exposed and approximated in front of the rectum, thus making a strong barrier to further descent.

The extreme types of posterior vaginal herniae or enteroceles are rare but those of lesser degree are far more frequent than is generally believed.

burned catgut sutures, and the vagina closed in the usual manner. In cases associated with prolapse of the uterus, in which the Mayo technique is employed, the obliteration of the cul de-sac is easily accomplished after the uterus has been cut away from the broad ligaments. A finger in the pouch demonstrates its exact location and a median vaginal

A cross incision through the vaginal fascia is made at the truncocutaneous junction of the vagina and urethra —

beneath the bladder in the usual way. A perineorrhaphy completes the operation. The obliteration of the cul-de-sac can be accomplished in a similar manner from above if an abdominal operation is indicated. H. W. FINE, M.D.

Spalding, A. B.: The Cause and Care of High Rectocele. *J. Am. M. Ass.* 923 box, 706.

Among the causes of rectocele the author cites congenital absence of the ligament plicocystocele or hernia.

1. Uterine infection and subinvolution of the uterus, hard work during the lactation period, and chronic constipation.

The treatment of high rectocele

1. Uterine infection and subinvolution of the uterus, hard work during the lactation period, and chronic constipation.

H. W. FINE, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Baer J L. A Contribution to the Problem of Nephritis and Nephrosis in Pregnancy. *J Am M Ass* 122: 921-924, 62

The author believes that the so-called "kidney of pregnancy" occupies a position between nephritis and nephrosis. Very probably the initial changes occur in the renovascular system, the tubular epi-

edema and moderate retention of sodium chloride are frequent. The condition usually occurs in the second half of pregnancy. Most authors deny the transition of a pregnancy nephropathy into chronic nephritis. Of course the occurrence of pregnancy in a woman with a pre-existing nephrosis may and as a rule will, aggravate the condition of renal decompensation.

In this study the author used functional tests based on Mowenthal's pioneer work and coupled

administration of a dyestuff such as methylene blue or indigo-carmin. The urine must always be boiled and filtered to remove the albumin. In the normal case serial readings of the specific gravity of the urine after the administration of 5 gr of methylene blue shows no change or an increase. In severe or advanced the specific gravity will drop

pregnancy is based on the interpretation of renal and remote symptoms plus capillaroscopy.

The treatment of the kidney of pregnancy should be determined by our renal physiology and pathology and the relative predominance of nephritic and nephrotic symptoms. The nephropathy of pregnancy does not furnish an indication for artificial interruption of pregnancy but under some conditions a genuine nephrosis of marked degree necessitates emptying of the uterus. Among such indications may be mentioned retinitis, albuminuria, and edema of such degree or location as to be serious.

The prognosis is better in nephrosis than in

A brief summary of five typical cases of different types is given. C H DAVIS, M D

Talbot, J E. Chronic Sepsis in Pregnancy. *Baer's M & S J* 192: 41-44, 55

The author draws the following conclusions:

1. The white placental infarct is the end-result of a hemorrhagic lesion, its evolution being that of a

placental site.

4. There is clinical and histologic evidence that the primary lesion in the maternal blood vessels of the placental site is of infectious origin.

5. The clinical sequence of events shows that the lesion is the result of hematogenous infection and that the source of the infection is generally in the teeth or tonsils.

6. The determination of the infectious origin of placental infarcts demonstrates a large clinical entity in pregnancy which has chronic sepsis as its initial lesion.

7. In the presence of pregnancy treatment by the removal of areas of chronic sepsis should be pursued with the greatest caution. E L CORVALL, M D

LABOR AND ITS COMPLICATIONS

Amatjes J. The Clinical Results of Subcutaneous Pubiotomy (Pubotomía subcutánea resultados en la clínica). *Arch d ginec obst y pediat* 92: 337-36, 62

The author reviews the results of the pubiotomies performed in the obstetrical clinic at Barcelona from 1919 to 1927. The cases, thirty-seven in all,

were those of twenty three primiparae between 18 and 41 years of age, and fourteen multiparae between 32 and 37 years of age.

Thirty-four of the women left the clinic completely normal without the slightest postoperative complication. Of two who had a vaginal injury with urinary complications, one was completely cured by re-operation but the other left the clinic before treatment was concluded and has been lost sight of. One patient died of hemorrhage due to abraded uterine along which followed an attempt at manual extraction of the placenta. The fetus in this case was born asphyxiated and died a few minutes after birth. All of the other patients besides these three were up between the ninth and eighteenth days, and all of the fetuses lived except

which lived were born prematurely.

In three of these cases a pabiotomy was done for the second time on the same patient. In one case

Harris, J. W.: A Study of the Results Obtained in Sixty Four Cases where Parturition Terminated by Supravaginal Hysterectomy. *Ann Johns Hopkins Hosp* 10: 2, 1914, 318.

The author reviews the sixty-four cases occurring

Great Britain during the decade from 1911 to 1921. The indications for the supravaginal hysterectomy

TABLE 2.—SUPRAVAGINAL HYSTERECTOMY AT FIRST CAESAREAN SECTION

| Indications | Cases |
|-------------------------------------|-------|
| Late in labor or pusulent infection | 10 |
| Stenosis | 5 |
| Heart disease | 5 |
| Atresia of cervix | 5 |
| Neglected transverse presentation | 4 |
| Myoma of cervix | 3 |
| Post-clamp contraction of uterus | |
| Apoplexy of uterus | |
| Failure of bag or blouse | |
| Uncontrollable hemorrhage | |
| Dystocia following central fixation | 1 |
| Total | 47 |

TABLE 3.—SUPRAVAGINAL HYSTERECTOMY AT REPEATED CAESAREAN SECTION

| Indications | Cases |
|-------------------------------------|-------|
| Late in labor or pusulent infection | 8 |
| Stenosis | 3 |
| Tearing of uterine incision | 1 |
| Blockage of outlet by coagulants | 1 |
| Total | 13 |

TABLE 4.—HISTOLOGICAL STUDY OF AMPUTATED UTERI

| Duration of Labor | Total specimens | Inflammatory changes | Per cent |
|-----------------------------------|-----------------|----------------------|----------|
| Before or within 6 hours of onset | 27 | 1 | 3.7 |
| Between 6 and 24 hours | 5 | 4 | 80.0 |
| Late first or second stage | 28 | 18 | 64.3 |
| Total | 60 | 23 | 38.3 |

orhage into the uterine musculature.

The author states that at the Johns Hopkins Hospital they have come to regard the late onset of

L. H. Davis, M.D.

PURPERIA AND ITS COMPLICATIONS

Thorp, E.: Fevers of the Puerperium. *Lancet* 1922, 622, 660.

During the last few years a large number of cases of puerperal sepsis and puerperal scarlet fever and cases in which the two conditions were associated

stream.

As regards the newborn babies Thorp's records show that there were only two who did not present evidence of the disease while in the hospital. In

in the newborn babies were often severe convulsions being not uncommon the throat symptoms were prominent, and in one case death occurred from oedema of the glottis. The pure puerperal scarlet fever ran a fairly mild course, though the signs and symptoms were better marked than in other patients admitted from the town, where the disease was at that time of a particularly mild type. There were no deaths in the cases uncomplicated by sepsis.

The mothers were in most instances able to feed their babies, and treatment was directed chiefly to the vulva and vaginal lacerations. The cases of

prevent after-effects aim to keep the condition from spreading. All rashes must be regarded as of septic origin until proved otherwise, morbilliform rashes in the puerperal woman are almost certainly septic. As scarlatiniform rashes are observed frequently a diagnosis of scarlet fever should depend upon the presence of an injected throat and double rash. In

shows some change from the normal in most cases it does not completely stop but becomes offensive

grave septicæmia

When called in to see a puerperal woman with pyrexia one should immediately endeavor to exclude sepsis or to diagnose and notify regarding the disease if it is present. There appears to be a diffidence in recognising its presence unless it is apt to be fatal. notifications are very few in comparison with

GENITO-URINARY SURGERY

ADRENAL, KIDNEY AND URETER

Hrynschuk, T: The Surgical Importance of
 Duplications of the Renal Pelvis and Ureter
 (Ueber die chirurgische Bedeutung von Doppel-
 bildungen des Nierenbeckens und Harnleiters)
Zisch J urol Chir 1922 12: 87

Duplication of the renal pelvis and ureter is a
 frequent cause of obstruction to the outflow of
 urine. The stasis in the renal pelvis and ureter
 lead to hydronephrosis or pyonephrosis. Complete
 duplication of the ureter may be recognized
 easily if both ureteral openings on the affected

(by means of a wax ball or an acorn-tipped
 bougie) are employed collectively

UNILATERAL STONES

These vessels at the base of the body pelvis and

In conclusion the author reports the case of a

with two shadows the size of a walnut at the
 level of the crest of the ilium on the right side. A
 diagnosis of duplication of the right renal pelvis
 and pyonephrosis of the lower portion of the
 kidney was made. Nephrectomy was done.
 Cystoscopy after some time showed that there was
 also a pyonephrosis on the left side.

The frequency of malformation of the renal pelvis
 and ureter is estimated at 1 to 4 per cent.

1. VERNER (6)

Walcher H. W. E.: Intravascular Management of
 Obstructions in the Ureter with Special
 Reference to Stones and Stricture. *J. Am. Urol.*
 1917, 9: 1007, 711

Obstructions in the ureter are either congenital
 or acquired partial or complete and of intrinsic or

since in the lower ureter it will frequently be pos-

UNILATERAL STRICTURE

The three main etiological factors of intrinsic
 narrowing in the ureter are pyogenic infection,

calculi, and tuberculosis. The responsibility of the first and last named conditions is well known, but the author emphasizes particularly that ureteral calculi is an important cause of stricture formation.

No. 6 F ureteral catheter. Koltscher pointed out years ago that the only means of determining the

stricture occurring at the instant the roentgenogram is made may suggest strictures which in reality do not exist.

In this condition, as in cases of ureteral calculi, dilation is paramount. In the male in whom the prism cystoscope is generally used, accoutrements of silk have proved most satisfactory. All of the instruments advocated for the treatment of ureteral stone are of equal value here. The intervals between dilations are usually about two weeks in length.

The author draws the following conclusions:

URINARY TRACT

Stone and stricture are the two principal factors in the causation of ureteral obstruction.

Approximately 90 per cent of ureteral stones can be removed by non-operative means. Trans-urethral dilation of the ureter with instruments is safe in the hands of the experienced, rational, and

of these ulcers suggest that they have their origin in a mechanical cause, such as a crack in a chapped lip and are perpetuated by the bladder activity. The submucosa infiltrate about them spreads over a wide area and over this the mucosa cracks readily when stretched. Hence the tendency of the symptoms to become worse with the lapse of years. A great variety of treatments may succeed. In some

immobilization. Urethral dilation has given relief in two of the author's cases, probably by relieving trifling urethral retention. In others, cystoscopic cauterization of the ulcers with a silver nitrate pencil, the high-frequency current, or hypox-hydrargyrum nitrate has been beneficial. Resection does not

CAUSE OF URETERAL STRICTURE

Bladder irritability persisting for years after nephrectomy for renal tuberculosis may be due to a variety of causes, among which tuberculosis of the remaining kidney and of the urethra are prominent. The bladder lesion of chronic tuberculous cystitis may be a pure tuberculous but is more often a mixed infection. Successful treatment of this condition

the cystoscope or by the Chetwood operation, cauterization of the ulcers or tuberculous granulomata by silver nitrate or the electric spark, and

BLADDER, URETHRA, AND PENIS

Kelly, E. L., Jr.: The Character and Treatment of Bladder Ulcers. *J. Urol.* 1922, vol. 16.

Chronic inflammatory ulcerations of the bladder may be grouped into three classes: (1) tuberculous ulcers; (2) ulcers of the so-called Hunner or eluvie type; and (3) incrustated ulcers.

The incrustated ulcer is due apparently to some

Turner T T: Intrapertoneal Rupture of the Bladder. *Am Surg* 1922, 17, 64

On the basis of two cases and a review of the literature the author draws the following conclusions:

1. Intrapertoneal rupture of the urinary bladder is infrequent and few cases have been reported. Its mortality is still high but has been greatly decreased in the last forty years, before which period recovery was almost unknown.

2. The absence of sufficient laxity in the posterior or peritoneal wall of the normal bladder for easy and secure suturing of a rent is sufficient to more consideration than it has received.

too far advanced for surgical treatment. This patient was kept alive in comparative comfort for two years by means of large doses of radium. The

occur very rarely in the urethra. In the female

Scholl A. J., Jr. and Brausch, W. F.: Primary Tumors of the Urethra. *Am Surg* 1922, 17, 191

urethra. A protective hyperplastic reaction is produced which in some cases undergoes malignant change. In many cases of primary carcinoma collected from the literature the authors had a history of urethral structure. The majority of carcinomas which follow long-standing infection and trauma

Von der Osten-Sacken, E. Anatomische Hypoplasie (Anatomische Hypoplasie). *Fortschr d med* (der Deutsch-Ges. Petrograd, 9)

Apart from its clinical interest, the description of the author's case serves as a protest against the neglect of possible mechanical factors in favor of endogenous causes in attempts to explain congenital

nancy

One case of carcinoma of the male urethra is reported. The patient was 45 years of age and had a long standing infectious urethritis and a urethral

The growth

urethra is
be intra
urethra
primary
neoplasm may grow slowly and cause only a few symptoms. Attention may be directed to the primary focus only by the discovery of a metastatic growth

Three cases of primary carcinoma of the female urethra were treated at the Mayo Clinic. In one the growth was cauterized with the actual cautery. This patient was without recurrence and perfectly well six years later. The second case was considered

plasma but all the growths. The great loss of plasma together at others by means due to compression. The most loss are

of
be
totality

toward the left the raphe of which toward the glands also deviates to the left, widens irregularly and passes over into the prepuce which is tucked up along the coronary sulcus. The cleft shaped external orifice is normally placed, but

tion of the fingers. The parts situated away from

The genesis of this condition was doubtless determined mechanically by abnormalities of the amnion

107. DEB. OTTEN-SCHULTZ (Z)

Flascher A. Defect of the urethra and of the external orifice of the urethra. Zentr. f. Urol. 9. 1911, 300. The operation is described.

born to her. It is of the nature of a wound surface on the scrotum.

Three or four weeks after this operation the penis is separated from the scrotum again by cutting through the fold of skin which appears when the two are drawn apart. This division is made 5 or 6 mm from the urethra, the position of which is marked by sound. The margins of this wound are joined under tension at the penis and scrotum.

GUTHRIE (Z)

GENITAL ORGANS

Milberg, W. A. The Prostate and Prostatic Hypertrophy (Prostatitis and Prostatohypertrophy). *Verh. f. Urol. Genet.* 1911, LVII, 879. Comparison of the

much more developed than the caudal, encircles the ejaculatory duct like a broad ring and in position and origin corresponds to the middle lobe in man. The middle lobe in man is rudimentary and lies

usually a type of prostate according to Halban and

connected with the state of development of the testicles. Castration in a young male stops the growth of the prostate. The development of the middle lobe is slow in man because of retarding

glands take the leading part.

As treatment of prostatic hypertrophy the author proposes early implantation of portions of healthy testis. Thus, he believes, is better than the organotherapy of Kato which consists in the injection of testocurin obtained from glands of a different species. DOWLING (Z)

Bumpus, H. C. Jr. Cancer of the Prostate: a Comparison of Results Obtained by Radium and Surgical Treatment. *Surg. Gynec. & Obst.* 9. 1914, 77.

measure current misconceptions regarding the effectiveness of radium therapy.

Carcinoma of the prostate often becomes very extensive and even metastasizes before urinary symptoms call attention to its presence and in 25 per cent of all cases metastasis to the bones is present hence cases are rarely presented for treatment in the initial stages.

Before 1915 when radium was first used in the Mayo Clinic patients with carcinoma of the pro-

State who were in sufficiently good physical con-

completely

In decreasing results, cases in which malignancy

suprapubic operations were employed about equally in both groups.

The macroscopic findings as to the relative de-

is slight

One hundred and twenty-four patients subjected to partial prostatectomy for carcinoma are compared with 152 who were treated with radium. The 154

six years ago, when all in the

who were examined at the Mayo Clinic, and the average duration of the disease was thirty-two months from the first symptoms to

treatments, but it is interesting to note that the twenty-nine living patients treated with radium

patients must be made and the fact recognized that in order to radiate the entire lesion sufficiently it is necessary to use all methods of application with minimal doses of radium. The number of points from which radiation is directed is as important as the dosage

Berberich, J., and Jaffe, K.: The Testicles in General Diseases, with Special Consideration

Following a review of the literature Berberich and Jaffe discuss the question as to when signs of degeneration are found in the testicle in the various diseases and whether or not the interstitial cells are increased

On the whole, the authors accept the theory of Goette who recognizes four grades of injury of the testicle. The first grade is characterized by disappearance of the spermatids and spermatocytes, the second by destruction of the spermatocytes, the third by destruction of the spermatogonia, and the fourth, the most severe, by destruction of the epithelium and the Sertoli cells

found numerous interstitial cells in the absence of any signs of repair in the canals. They found also

with year of age. In these groups there were six and three, respectively, with fibrosis of the testis. Of the twenty-one cases of the first group, in which death was due to an acute disease, atrophy of the testis was found in only two cases and in these was only of the first grade. One was a case of pneumonia and the other a case of typhoid fever. Only spermiogenesis had been injured. In ten cases an increase of the interstitial cells was observed but in nine others of the series it was not noted. In most of the cases the testicles of the men who died of cachexia due to a chronic condition between the seventeenth and fifty-sixth years of age (50 cases) showed an increase in the interstitial cells but only half of

however was not constant. On the other hand, the testis of older men (over 50 years) even those who died from acute disease showed a constant and distinct injury of spermiogenesis, regardless of the state of nutrition, and no specially marked increase of interstitial cells poor in lipid. In the testes of acute chronically diseased men over 50 years of

separated by hemorrhages. In the first case, the normal testis showed good spermiogenesis but the canals were separated by edematous connective tissue and the interstitial cells were abundant and rich in lipid. The authors believe that here as in fibrosis of the testis and atrophy of the testis caused by chronic alcoholism, the increase in the interstitial cell should be considered as a compensatory hypertrophy for the destroyed seminal canals. In chronic alcoholism a severe injury with a simultaneous marked proliferation of the interstitial cells was found the libido and generative

man was extremely cachectic and had multiple metastases. The testis was small, spermiogenesis was good, and the interstitial cells were few and rich in lipid. Therefore, according to the authors, neither the castration nor the cachexia caused any change in the testis. The findings in other reported cases of semi-castration showed no important changes in the remaining testis.

The authors therefore come to the conclusion that a relationship between certain diseases and certain changes in the testis is not demonstrable. In young persons there is usually no injury of spermiogenesis, but frequently especially in the rare cases of trauma, there is an increase in the interstitial cells. In more advanced age on the other hand, spermiogenesis is injured by acute as well as by chronic diseases and the interstitial cells show an increase only rarely. There seems to be a

interstitial cells cannot be regarded as a sign of regeneration, but is possibly a substitution process for

to syphilis, circulatory disturbances of an arteriosclerotic nature.

As long as interstitial cells are present their relationship to internal secretion and libido cannot be determined. Not a single case of absence of the cells was found; therefore the authors refuse to take any stand in this matter.

In two cases of unilateral testis, one treated surgically and the other found at an autopsy, no signs of spermiogenesis were seen by the authors. Many of the canals contained

of the connective tissue. The interstitial cells were extraordinarily abundant and lay massed in large clumps. In the first patient a man 33 years old, they were very rich in lipid, while in the second, a man 46 years old, they were poor in lipid and

not affect the acetal sphere directly but stand in a reciprocal relationship to the other endocrine glands. As the endocrine

power the increase is absent.

As in all of the cases which came under observa-

vent cells were intact, the authors believe they are not justified in drawing any conclusion with regard to the question of internal secretion.

ROUSSEAU (2).

Grignani, R.: The So-Called Cystic Disease of the Testicle (*Sulla cosiddetta cistica del testicolo*). *Ann Ital di chir* 1925, I, 38

Cooper in 1804 applied the term cystic disease

complaints were a marked loss of weight, poor ap-

the

Conner, F. P.: Malignant Disease of the Retained or Imperfectly Descended Testis. *Indian M Gaz* 1911 LVII, 205

the
pr
lic
er

tion advised

The mass was removed under ether anesthesia. Its capsule was not complete but the adhesions were easily broken up. A number of glands in the neighborhood of the tumor were also removed.

Convalescence was uneventful, the patient being allowed to get up on the tenth day and discharged four days later.

The pathologist reported the specimen to consist of a testicle occupied by a new growth. On section the main mass of tissue was found to consist of carcinomatous areas with other areas suggesting sarcoma. The patient died six months later, probably of extra-abdominal metastases. Autopsy was not allowed.

A thorough review of the literature shows that the theory that the undescended testicle is prone to malignancy is not based upon reported cases. Da Costa is quoted as stating that 10 per cent of testicles involved by sarcoma are undescended testicles. C. D. Hodder, M.D.

Kravitz, E.: Transplantation of the Testicle and Homosexuality (Hodotransplantation und Homosexualität). *Zentralbl f. Chir* 1922 XLV, 515

Although the experiments of Foerster, Stanley, Fiedler, and the author have shown beyond a doubt that the transplanted testicle atrophies, cases have been reported in which homosexuality was cured by testicle transplantation. Kravitz believes that a large number of these cases are not to be regarded as cases of specifically functioning generative glands, and has endeavored to throw light on the problem by reversing the experiment. He transplanted into an individual who, despite bilateral castration, retained heterosexual feelings, a

Garrin, C. H., and Carson, S. L.: Carcinoma of the Undescended Abdominal Testicle—Report of a Case. *J Natl M Ass* 1922 XIV, 59

individual by repeating the same experiment

Heller, J., and Sprinz, O. Contributions to the anatomy of the prostate and urethra.

The colliculus seminalis consists of a thence rich in smooth muscle fibers which in isolated areas possesses a variously developed cavernous tissue. The superficial mucosa, which lies in folds, contains recesses and therefore in the endoscopic picture often appears papillomatous. The prostatic utricle which opens at the summit of the colliculus seminalis varies in its dimensions. It may be as long as 12 cm and as broad as 2 cm or when there is cyst formation, even larger. The ejaculatory ducts are surrounded by a layer of circular muscle fibers which are contractile in their entire extent. The corpus cavernosum which Ruediger described as situated at the orifice and believed to play an important part in erection and ejaculation could not be found by the authors. Neither were they able to find the spermatic sphincter described by Porous.

COMPARATIVE ANATOMY

The authors review the structure of the prostate and the utricle as described by Draelhorst and Schmalz. From the observations of Heller and Sprinz on the normal and comparative anatomy which are reported in the form of illustrations with short legends, the following conclusions may be drawn.

Transverse section shows a markedly indented mucosa, gland formation immediately beneath this mucosa, and in the latter numerous corpora amylicia in various stages of development. Cavernous spaces, and therefore a corpus cavernosum of the verumontanum itself are probably simulated by secondary hemorrhages in the atrophying glands. Numerous pictures of the verumontanum of the dog, monkey, bull, ox, boar, pig, ram and sheep show disappearance of the projections, foveae, and villi of the mucosa as a characteristic change of the verumontanum following castration. Instead of a broad mound, the colliculus forms a conical process.

PHYSIOLOGY

The authors cannot agree with the American authors, Rosen and Rytina, who speak of a physiology of the colliculus and consider the latter as an important endocrine gland. The function of the colliculus in the sexual act as described by Porous is discussed on the basis of the anatomy.

PATHOLOGIC ANATOMY

The pathologic changes of the colliculus which appear striking on macroscopic examination and lead to microscopic examination are very rare. Heller who discusses the pathology of the colliculus mainly on the basis of specimens in the Berlin Pathological Institute stated that he could determine no other change than tuberculosis. The abnormalities and diseases, as observed up to the present

time, include adenomatous proliferation of the utricule glands, cyst formation in the colliculus, and valve and hymen formation in the prostatic portion, originating from the colliculus.

The authors discuss acute inflammation of the colliculus only briefly as they were unable to make histologic examinations. Because of the danger of excitation of the excretory ducts of important organs they discontinue biopsy and the therapeutic excision of portions of the colliculus as advised by Rytina. In a case of malakoplakia of the bladder a very cystic utricle was found. In the

colliculus the structure is greatly changed by the formation of cicatrices. Traumatic changes of the colliculus are also very rare.

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eg. in the urethra, Lohstein, and Huerger, he found that enlargements, hyperemia, and inflammation of the colliculus are not so frequent as would appear from direct endoscopy. Isolated

the structure of the colliculus is rather of the colli-

against commencing as papillomatous small villous growths which appear enlarged in the endoscope as a result of magnification. Because of the folds in the mucosa of the colliculus small portions are

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e originate especially often and in great numbers in the colliculus. A relationship between the formation of prostatic nodules and stone formation seems very doubtful to the authors as the great frequency of corpora amylicia is in direct contrast to the rarity of stone formation. Atrophy of the prostate shows no effect upon the colliculus in the majority of cases.

The chapter on the relationships of the colliculus to prostatic hypertrophy is relatively short and the

views of Tandler and Zockerland are not mentioned. In the authors' opinion the colliculus is usually unchanged microscopically in prostatic hypertrophy. The spreading of malignant tumors of the prostate to the colliculus is very rare. *Practica* (2)

nostril aids as the cystoscope before taking a detailed history and making a thorough general physical examination.

3. Examine the urine, especially for microscopic

MISCELLANEOUS

Quincy W. C.: The Diagnosis of Disease of the Urinary Tract. *Boston M. & S. J.* 1922 (abstract) 229

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2. and by means of the X-ray and

therefore be carried out frequently as a means of elucidating the source of abdominal pain whatever its location. *Louis Quercy, M.D.*

SURGERY OF THE EYE AND EAR

EYE

Franklin, W. S., and Horner W. D. Hernia through Tenon Capsule with Extrusion of Orbital Fat, a Birth Injury. *Am. J. Ophth.* 1927 v. 60

This article is very interesting from several standpoints. (1) the condition was correctly diagnosed before operation as proved by microscopic examination of a section taken at the time of operation. (2) both eyes were similarly affected, one in the

adverses so that the knife can be passed across the eye without touching it, then washes the lids and brow with a 1:2,000 bichloride of mercury solution inserts the speculum and washes out the conjunctival sac. He does not tell the patient to look this way or that, but makes him look in whatever direction he desires by means of the fixation forceps.

Most surgeons hold the knife too tightly and too near the blade. Smith discusses the incision in

revealed no report of a similar case.

THOMAS D. ALLEN, M.D.

MacGillivray, A. Subconjunctival Cataract Extraction. *Brit. J. Ophth.* 1922 vi, 351

The author refers to previous articles in which he drew attention to the usual extraction of cataract as a non-scientific procedure because it leaves a large wound without protection.

After discussing several methods of subconjunctival extraction dating back to Alexander's publications in 1878, MacGillivray describes the method he used in his last 100 cases. The technique of this

should be caught lightly with the iris forceps because if pinched tightly the patient will wince. To prevent tearing away the whole iris care must be taken not to pull it out too far during the cutting.

In the removal of the lens the position of the assistant is extremely important. The assistant should stand at the left of the patient and hold the lower lid down with his left thumb and the upper lid away from the eye and somewhat down with a lid

spr to adhere to the upper edge of the wound but may be freed with the iris retractor before the eye is closed.

T. D. ALLEN, M.D.

computed. The knife is inserted in the temporal margin 1 mm. back of the limbus and 1 mm. above the horizontal diameter and passed horizontally through the chamber.

Holland, H. T. Some Contra Indications to the Intracapsular Operation for Cataract Based on 8,000 Cases, by an Intracapsular Operator. *Indian M. Gaz.* 1922 lxxv, 196.

Holland is a pupil of Smith, but differs somewhat from his teacher with regard to the contra indications of the "Indian Smith" operation. Smith states that there are three classes of cases unsuitable for intracapsular extraction: (1) cases of congenital cataract; (2) juvenile cataracts up to the thirtieth year of age; and (3) cases of after-cataract, also called secondary cataract.

Holland adds the following: (1) the large prominent "ox eye" in plethoric persons; (2) ordinary cases in which the lens is too hard to be removed; (4) cataract associated with

Smith, T. F. S. Extraction of the Lens in Its Capsule. *Indian M. Gaz.* 1923 lxxv, 33.

caused the cataract

T. D. ALLEN, M.D.

" " "

nestic aids as the cystoscope before taking detailed history and making a thorough general physical examination.

Examine the urine especially for macroscopic amounts of pus and blood, but do not conclude that if the urine is normal the possibility of disease in the

MISCELLANEOUS

Quinby W C: The Diagnosis of Diseases of the Urinary Tract. *Modern M & S J* 19:2 cxviii, 229

" " "

He gives the history of fourteen cases, clearly defining data obtained by means of the X-ray and then thoroughly analyzes each case.

The following working rules are suggested:

1. Do not rush to the use of such modern diag-

ns by the use of the cystoscope and ureteral catheter.

" " "

SURGERY OF THE EYE AND EAR

EYE

Franklin, W. S., and Horner, W. D.: Hernia Through Tenon's Capsule with Extrusion of Orbital Fat, a Birth Injury. *Am J Ophth* 1922, 7, 601.

This article is very interesting from several standpoints. (1) the condition was correctly diagnosed before operation, as proved by microscopic examination of a section taken at the time of operation. (2) both eyes were similarly affected, one in the

revealed no report of a similar case.

THOMAS D. ALLY, M.D.

MacGillivray, A.: Subconjunctival Cataract Extraction. *Brit J Ophth* 1922, 1, 35.

The author refers to previous articles in which he drew attention to the usual extraction of cataract as a non-scientific procedure because it leaves a large wound without protection.

After discussing several methods of subconjunctival extraction dating back to Alexander's publications in 1823, MacGillivray describes the method he used in his last 100 cases. The technique of this

operation. The knife is inserted in the temporal margin 1 mm back of the limbus and 1 mm above the horizontal diameter and passed horizontally through the

conjunctival bridge is continued upward for a distance of about 2 mm. The

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Smith, T. F. S.: Extraction of the Lens in Its Capsule. *Indian M Gaz* 1912, 13.

Smith confirms his remarks mainly to correct the

accidents so that the knife can be passed across the eye without touching it, then washes the lids and brow with a 1:2,000 bichloride of mercury solution, inserts the speculum and washes out the conjunctival sac. He does not tell the patient to look thus way or that but makes him look in whatever direction he desires by means of the fixation forceps.

Most surgeons hold the knife too tightly and too near the blade. Smith discusses the incision in detail. At the end of the incision the iris is very apt to be caught on the blade and the surgeon is very apt to cut quickly. This is wrong. Unless the incision is made very slowly the lens and vitreous may both be injured. In the iridectomy the iris should be caught lightly with the iris forceps because if punched tightly the patient will wince. To prevent tearing away the whole iris care must be taken not to pull it out too far during the cut.

In the removal of the lens the position of the assistant is extremely important. The assistant

apt to adhere to the upper edge of the wound but may be freed with the iris retractor before the eye is closed.

T. D. ALLY, M.D.

Holland, H. T.: *Extraction of the Lens*.

I.

Holland is a pupil of Smith, but differs somewhat from his teacher with regard to the contraindications of the Indian Smith operation. Smith

caused secondary cataract.

Holland adds the following: (1) the large prominent "ex eye" in plethoric persons; (2) ordinary

EAR

Burton F. A.: Two Cases of Otoblastoma. *Am J Surg* 1912, xxvii, 171.

the ear

The first specimen removed was a female "ear tick," *arachnida isodidae dermacentor reticulatus* and the second an "ear tick," *arachnida isodidae ornithodoros megnini*.

Both types are native to California, Arizona, Texas, and Nevada. Frank J. Novak, Jr. M.D.

Juarez, A.: Primary Malignant Tumors of the Middle Ear (Ueber die primären bösartigen Geschwülste des Mittelohres). *Schweiz. med. Wochenschr.* 1912, lxi, 51.

The rarity of primary malignant tumors of the

culosis which, because of the marginal location of the perforation, led to a cholesteatoma giving rise, in exceptional cases, to a secondary carcinoma formation.

A sarcoma was observed twice and an endothelioma once these growths usually develop in a previously healthy middle ear. The sarcomata appeared in children and the cancers in adults. The patient with the endothelioma was 70 years old.

The most prominent symptom is severe headache. Attacks of vertigo were present in only one case.

ear. The facial nerve was involved in four cases, facial paralysis may be the first symptom of this

the operation is observed only after sarcoma and endothelioma. Irradiation therapy also should be used. It is a remarkable fact that the degeneration of the neighboring glands occurs late and distant metastases are very rare. As a rule, cachexia, and more rarely a suppurative meningitis, causes death.

Barvov (2)

due to an infection such as scarlet fever or tuber

SURGERY OF THE NOSE THROAT AND MOUTH

NOSE

Hager F R. Intranasal Encephaloceles (Ueber intranasale Encephalocele) *Schmerz und Wundheilung* 1921 12, 516

The nasal forms of cerebral hernia may be easily confused with intranasal tumors. The sphenoidal

nasal

nasal

before a broad acule tumor as large as a cherry

large doses of urotropin and repeated lumbar punctures

position to which the boy succumbed

BRUTTER (2)

THROAT

Ull S.: A Cured Case of False Route Due to Intubation (Ein geheilter Fall von "fausse route" infolge von Intubation) *Otto's Arch* 1921 12, 218

MOUTH

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early, the earlier the better

nasal cavity or nasal cavity introduced into normal position. Early operation insures a more natural voice and a correspondingly good return with better function. *FRANK K. HAYES, M.D.*

Comber V., and Murard, J.: Abscess of the Tongue (Les abcès de la langue) *Praxis med* 1921 9, 221, 230

The fact that the tongue which is exposed to so many bacteria has so few infections as compared with the tonsils, the hard palate, and the gums is due perhaps to the firm structure of its mucosa, its lack of movable submucosa, and its muscular structure. The acute infections of the tongue are superficial or involve the paracystoma at various depths. They usually form an abscess but in some cases there may be an ordination's fluctuation without pus. The

nasal lingual artery passes

vertical diameter of the tongue is increased so that it

the so-called "nasal" is caused by puncture with a

the so-called "nasal" is caused by puncture with a

the so-called "nasal" is caused by puncture with a

EAR

Barton, F. A.: Two Cases of Otobiosis. *Am J Surg* 1921 xxvii, 71

Barton reports two cases of ear tick disease the characteristic symptoms of each being chiefly impairment of hearing. There was no pain and no tinnitus, and only in the second case was there bleeding from the ear.

The first specimen removed was a female "net tick," *arachnida ixodidae dermatocentor reticulatus* and the second an "ear tick," *arachnida ixodidae ornithodoros megaloi*.

Both types are native to California, Arizona, Texas, and Nevada. FRANK J. NOVAS, JR. M.D.

Jumod, A. Primary Malignant Tumors of the Middle Ear (Ueber die primären bösartigen Geschwülste des Mittelohres). *Schweiz med Wochenschr* 1922 li, 51

The rarity of primary malignant tumors of the middle ear is shown by the fact that only six such cases came to the Basle Clinic in twenty five and

colost which, because of the marginal location of the perforation, led to a cholesteatoma giving rise, in exceptional cases, to a secondary carcinoma formation.

A sarcoma was observed twice and an endothelioma once these growths usually develop in a previously healthy middle ear. The sarcoma appeared in children and the cancers in adults the patient with the endothelioma was 70 years old.

The most prominent symptom is severe headache. Attacks of vertigo were present in only one case.

cure Prolonged freedom from recurrence after

stratified pavement epithelium, all the cancers of the middle ear heretofore reported were carcinoids. This may be explained by the fact that they were preceded for years by middle-ear suppuration due to an infection such as scarlet fever or tuber

Baron 44.

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SURGERY OF THE HEAD AND NECK

Head

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abscesses of moderate size migrate toward the surface and open spontaneously or become absorbed,

bleeding. Hydrogen peroxide is very effective in arresting the hemorrhage.

The point of approach varies in different cases. When the abscess is not seen, the mouth is not the best route of approach, especially when the abscess

is deep and the abscess is not seen, the mouth is not the best route of approach, especially when the abscess

is deep and the abscess is not seen, the mouth is not the best route of approach, especially when the abscess

In early cases the authors recommend buccal and dental measures and hot packs to the subhyoid region, and if these are not successful opening and draining of the abscess. There is usually little

incision as the best and simplest to open an abscess which cannot be reached through the mouth. This gives good drainage and allows easy inspection after operation but may cause compression of the trachea.

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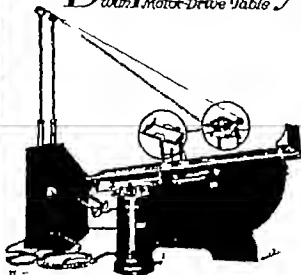
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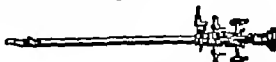
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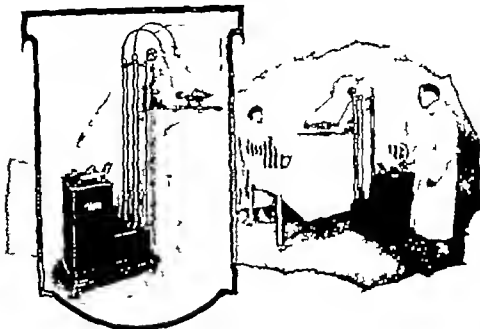


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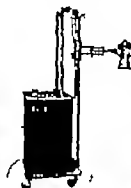
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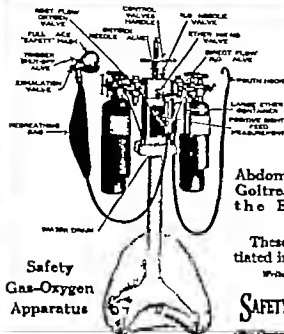
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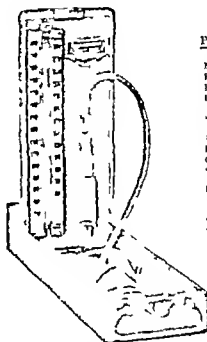
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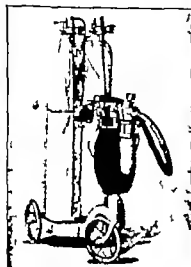
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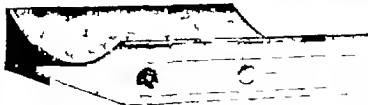
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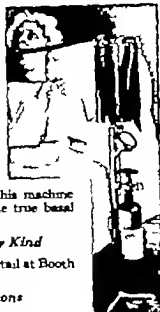
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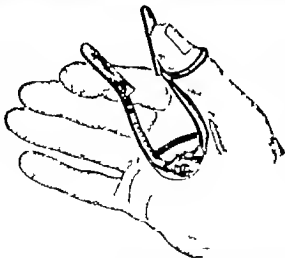
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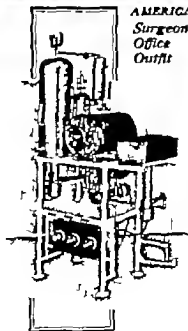
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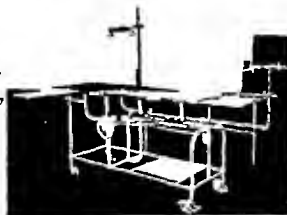
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The Surgical Supply House for New England

Ask Your Dealer for Circular and Prices of The Albee Fracture Orthopedic Operating Table

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When set in use
table occupies no
more space than
an ordinary op-
erating table

The only fracture table which anticipates completely the Balfour Frame and which can be used as a general utility surgical operating table

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Surgical Sutures Exclusively

KALMERID

217 221 Duffield Street

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Claustro-Thermal Catgut

Aseptic

CLAUSTRO THERMAL, the improved method of heat sterilization, consists in applying the heat after closure of the tubes, thus avoiding all the chances of accidental contamination. Sterilization by this positive method is made feasible by use of talcol as the tubing fluid, instead of the unstable chloroform.

No other mode of sterilization so completely fulfills the exacting requirements for the production of ideal sutures as does the Claustro-Thermal method. It preserves the natural physical characteristics of the strands, while the destruction of all bacterial life is absolutely assured.

Claustro-Thermal catgut is aseptic though not germicidal. Not being impregnated with any bactericidal substance it is inert in the tissues, exerting no inhibitive action.

These sutures are boilable. The tubes even may be autoclaved up to 30 pounds pressure for sterilizing their exterior preliminary to use. The heat sterilization procedure is described on the following page.

VARIETIES OF CLAUSTRO-THERMAL CATGUT

Each Tube Contains Approximately 1857 Inches

| | |
|-----------------------|---------|
| Plain Catgut | No. 106 |
| 10-Day Chromic Catgut | No. 125 |
| 20-Day Chromic Catgut | No. 143 |
| 40-Day Chromic Catgut | No. 128 |

Sizes 000 00 0 1 2 3 4

In packages of twelve tubes of kind and size

Last Price per dozen tubes (in U. S. A.) \$1

A. Inside diameter of 20% is allowed on one gross of tubes (27 net per gross) overage paid



Kalmerid catgut infused in water infused with Diphosphorus

Kalmerid catgut infused in water infused with Diphosphorus

Kalmerid Catgut

Antiseptic

KALMERID CATGUT is an improved germicidal suture superseding iodized catgut. It is not only sterile, but, being impregnated with potassium-mercuric iodide—a double iodine compound—the sutures exert a local bactericidal action in the tissues. It differs from the Claustro-Thermal catgut only in this respect.

The serious disadvantages of iodized catgut—decoloration, irritation, and impaired tensile strength—have been overcome through the use of potassium-mercuric iodide instead of iodine. Unlike iodine it does not break down under the influence of light or heat, it is chemically stable, and it is neither toxic nor irritating to the tissues. It interferes in no way with the absorption of the sutures, and is not precipitated by the proteins of the body fluids.

These sutures are boilable. The tubes even may be autoclaved up to 30 pounds pressure for sterilizing their exterior preliminary to use. The heat sterilization procedure is described on the following page.

VARIETIES OF KALMERID CATGUT

Each Tube Contains Approximately 1857 Inches

| | | |
|----------------|----------------|----------|
| Plain Catgut | Boilable Grade | No. 1206 |
| 10-Day Chromic | Boilable Grade | No. 1206 |
| 20-Day Chromic | Boilable Grade | No. 143 |
| 40-Day Chromic | Boilable Grade | No. 128 |

Sizes 000 00 0 1 2 3 4

In packages of twelve tubes of kind and size

Last Price per dozen tubes (in U. S. A.) \$1

A. Inside diameter of 20% is allowed on one gross of tubes (27 net per gross) overage paid

Kalmerid catgut is made also in an extra flexible grade, which is non-boilable and which is described on the following page.

GERMICIDAL EFFICIENCY AS COMPARED WITH IODIZED CATGUT

The marked inhibitory power of Kalmerid catgut, as compared with iodized catgut, is strikingly shown in these reproductions of culture plates. The bottom being the same.

See Advertisement on Page One

DAVIS & GECK, INC.

Surgical Sutures Exclusively

KALMERID

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Claustro-Thermal Catgut

Aseptic

Kalmerid Catgut

Antiseptic

CLAUSTRO THERMAL, the improved method of best sterilization, consists in applying the heat after closure of the tubes, thus avoiding all the chances of accidental contamination. Sterilization by this positive method is made feasible by use of talcol as the tubing fluid, instead of the unstable chloroform.

No other mode of sterilization so completely fulfills the exacting requirements for the production of ideal sutures as does the Claustro-Thermal method. It preserves the natural physical characteristics of the strands, while the destruction of all bacterial life is absolutely assured.

Claustro-Thermal catgut is aseptic though not germicidal. Not being impregnated with any bactericidal substance, it is inert in the tissues, exerting no prohibitive action.

These sutures are boilable. The tubes even may be autoclaved up to 30 pounds pressure for sterilizing their exterior preliminary to use. The heat sterilization procedure is described on the following page.

VARIETIES OF CLAUSTRO-THERMAL CATGUT

Each Tube Contains Approximately Sixty Loops

| | |
|-----------------------|---------|
| Plain Catgut | No. 106 |
| 10-Day Chromic Catgut | No. 125 |
| 20-Day Chromic Catgut | No. 143 |
| 40-Day Chromic Catgut | No. 175 |

SIZES 000 00 0 1 2 3 4

In packages of twelve tubes of kind and size

Last Price per dozen tubes (in U. S. A.) \$3

A wholesale discount of 10% is allowed on one gross or more (127 net per gross) carriage paid.



Catgut suture, sterilized by heat, infused with Sterilizing Talcol, prepared aseptically.

Catgut suture, sterilized by heat, infused with Sterilizing Talcol, under the pressure of vacuum.

VARIETIES OF KALMERID CATGUT

Each Tube Contains Approximately Sixty Loops

| | | |
|----------------|----------------|----------|
| Plain Catgut | Boilable Grade | No. 1206 |
| 10-Day Chromic | Boilable Grade | No. 1235 |
| 20-Day Chromic | Boilable Grade | No. 1245 |
| 40-Day Chromic | Boilable Grade | No. 1253 |

SIZES 000 00 0 1 2 3 4

In packages of twelve tubes of kind and size

Last Price per dozen tubes (in U. S. A.) \$3

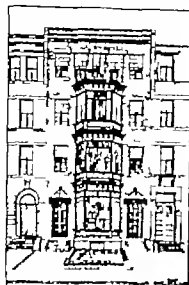
A wholesale discount of 10% is allowed on one gross or more (127 net per gross) carriage paid.

Kalmerid catgut is made also in an extra flexible grade, which is non-boilable, and which is described on the following page.

GERMICIDAL EFFICIENCY
AS COMPARED WITH IODIZED CATGUT

The marked antiseptic power of Kalmerid catgut, as compared with iodized sutures, is strikingly shown in these reproductions of culture plates. The higher areas about the individual sutures represent areas of no bacterial growth while the darker portions are masses of *Staphylococcus aureus*. It is evident that Kalmerid sutures exert in the tissues far greater antiseptic action than do the usual iodized sutures.

See Advertisement on Page One



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208 Newbury St.
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THE F H Thomas Company extends a cordial invitation to all surgeons attending the Clinical Congress at Boston to call on them at their new place of business, at 208 Newbury Street. A complete and varied line of surgical instruments and equipment will be displayed

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Unabsorbable Sutures

Heat Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity in Each Tube | Standard Length |
|----------------------------|-----------------------------------|-----------------|
| 350 Cellulose-Linen Thread | 80 Inches | 000, 00, 0 |
| 350 Horsehair | 4 28-In. Sutures | 00 |

490 Black Braided Silk 80 In. 00 1, 4

In packages of twelve tubes of kind and size

Last Price per dozen tubes (m U. S. A.) \$3

Wholesale discount of 25% allowed on gross or more cartage paid

Short Length Sutures

Heat Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity in Each Tube | Standard Length |
|---------------------------|-----------------------------------|-----------------|
| 802 Plain Catgut. | 20 In. | 00, 0, 1, 2, 3 |
| 812 10-Day Chromic Catgut | 20 In. | 00, 0, 1, 2, 3 |
| 822 20-Day Chromic Catgut | 20 In. | 00, 0, 1, 2, 3 |
| 862 Horsehair | 2 28-In. Sutures | 00 |
| 872 Plain Silkworm Gut | 2 14-In. Sutures | 0 |
| 882 White Twisted Silk | 20 In. | 000, 0, 2 |

In packages of twelve tubes of kind and size

Last Price per dozen tubes (m U. S. A.) \$1.50

Wholesale discount of 25% allowed on gross or more cartage paid

Sutures With Needles

Heat Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity in Each Tube | Standard Length |
|---------------------------|-----------------------------------|-----------------|
| 904 Plain Catgut. | 20 In. | 00, 0, 1, 2, 3 |
| 914 10-Day Chromic Catgut | 20 In. | 00, 0, 1, 2, 3 |
| 924 20-Day Chromic Catgut | 20 In. | 00, 0, 1, 2, 3 |
| 964 Horsehair | 2 28-In. Sutures | 00 |
| 974 Plain Silkworm Gut | 2 14-In. Sutures | 0 |
| 984 White Twisted Silk | 20 In. | 000, 0, |



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For Skin, Muscle, or Tendon

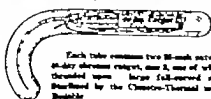
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Last Price per dozen tubes (m U. S. A.) \$3

Wholesale discount of 25% allowed on gross or more cartage paid

Obstetrical Sutures

For Immediate Repair of Perineal Lacerations



Each tube contains two 18-inch patterns of 60-day absorbent catgut, one 2, one of which is threaded upon large full-curved needle. Sterilized by the Chlorox-Thermal method. Boilable.

One tube in package

Product No. 650 Last Price per tube \$.35

Wholesale discount of 25% allowed on gross or more cartage paid

Circumcision Sutures

Heat Sterilized After Closure of Tubes—Boilable



Each tube contains a 30-inch suture of plain catgut, size 00, threaded upon a small full-curved needle.

In packages of twelve tubes

Product No. 800. Last Price per dozen tubes \$3

Wholesale discount of 25% allowed on gross or more cartage paid

Umbilical Tape

Heat Sterilized After Closure of Tubes—Boilable



Each tube contains two 12 inch ligatures of a specially woven flat tape one-eighth inch wide

In packages of twelve tubes

Product No. 802. Last Price per dozen tubes \$1.50

Wholesale discount of 25% allowed on gross or more cartage paid

Standard Sizes For All Sutures

| | | |
|-----|-------|---------------------------------|
| 000 | _____ | In conformity with the long |
| 00 | _____ | recognized need for a |
| 0 | _____ | unified system of sizes, the |
| 1 | _____ | standard scale of catgut sizes |
| 2 | _____ | now embraces all sutures, in- |
| 3 | _____ | cluding kangaroo tendons, silk, |
| 4 | _____ | horsehair silkworm gut, and |
| 5 | _____ | Fagenstlecher's celluloid linen |
| 6 | _____ | thread |

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3. A. IMPROVED INSTITUTE FOR LOCKED CATGUT SUTURES. By Cassius H. Watson. B.S. M.D. Surg. Gyn. & Obstet. Jan. 1920.
4. A. IMPROVED INSTITUTE FOR LOCKED CATGUT SUTURES.—II. BACTERIOLOGICAL TESTS. By Cassius H. Watson. B.S. M.D. Surg. Gyn. & Obstet. May 1920.
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10. ABSORBABLE ANIMAL LIGATURES. By Thomas A. Berry, M.D. Medical Director United States Navy. U. S. Naval Medical Bulletin, July 1921.

Reprints will be sent upon request.

Method of Sterilization

BOTH Claustr-Thermal and the boilable grade of Kalmerid catgut, described on preceding page, are subjected to the same sterilizing procedure: the sealed tubes are submerged in a bath of cumol and there exposed for five hours to the rigorous temperature of 165° C. (327° F.)¹ It is obvious that sterility is absolutely assured. Rigid bacteriologic control is maintained.



Kalmerid Catgut—(Non-Boilable Grade) Extra Flexible

THE NON BOILABLE grade of Kalmerid catgut differs from the boilable variety described on the preceding page in that it possesses extreme flexibility—a characteristic sometimes desired by surgeons accustomed to the use of iodized catgut. It is impregnated with potassium-mercuric-iodide, and the sutures exert a local bactericidal action in the tissues.

Potassium-mercuric-iodide is the double salt of iodine and mercury the chemical formula of which is $HgI_2 \cdot 2KI$. Through its use the serious disadvantages of iodized catgut—deformation, brittleness, and impaired tensile strength—have been overcome. It is one of the most active germicides known, exerting a killing action on bacteria about ten times greater than that of iodine. Physiologically it is bland and is entirely compatible with the tissues, not being precipitated by the proteins of the body fluids.

Kalmerid Kangaroo Tendons Boilable and Non-Boilable

KALMERID KANGAROO TENDONS are the sutures par excellence for those procedures in which post-operative tension is excessive or long continued application necessary such as in hernioplasty and in tendon and bone suture. They are not only sterile, but, in addition, are impregnated with potassium-mercuric-iodide, as in Kalmerid catgut, which enables them to exert a local bactericidal action in the tissues.

They are genuine kangaroo tendons: they are smooth, straight, of uniform contour and possess a tensile strength about twice that of catgut.

The tendons are chromicized, and so accurately is the process regulated that each size will maintain proportion in fibres or in tendon for approximately thirty days.

Kalmerid kangaroo tendons are prepared in two grades—boilable and non-boilable. The latter are extremely pliable.¹

VARIETIES OF THE NON-BOILABLE GRADE OF KALMERID CATGUT

Each Tube Contains Approximately Sixty Inches

| | | |
|----------------|--------------------|----------|
| Plain Catgut | Non-Boilable Grade | No. 1408 |
| 10-Day Chromic | Non-Boilable Grade | No. 1425 |
| 20-Day Chromic | Non-Boilable Grade | No. 1445 |
| 40-Day Chromic | Non-Boilable Grade | No. 1475 |

SIZES 000 00 0 1 2 3 4

In packages of twelve tubes of 1408 and also

List Price per dozen tubes (in U. S. A.) \$2

A wholesale discount of 25% is allowed on one gross or more (125 net per gross) otherwise paid

VARIETIES AND SIZES

Non-Boilable are Product No. 370

The Boilable are Product No. 390

Each Tube Contains One Tendon

Lengths Vary From 12 to 36 Inches

STANDARD SIZES 0 2 4 6 8

Formerly termed extra fine, fine, medium, coarse and extra coarse, respectively

In packages of twelve tubes of 1408 and also

List Price per dozen tubes (in U. S. A.) \$2

A wholesale discount of 25% is allowed on one gross or more (125 net per gross) otherwise paid

THE FERMICATION OF KALMERID SUTURES BY POTASSIUM MERCURIC IODIDE



The lighter shaded opening is cross section of strand of plain Kalmerid catgut, highly magnified.

The darker shaded opening is cross section of the same strand treated upon by immersion sulphide to provide the mercuric element.

The uniform color throughout the darker section shows the thorough permeation by the potassium-mercuric iodide the available distribution of which ensures supply of this germicidal substance in the tissues until the suture is entirely absorbed.

General Qualities

— — — — — 11 varieties of

accuracy of suture, flexibility and absolute sterility. They are unaffected by age or light, or by extremes of climatic temperatures.



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of Roentgen* Vol IX No 1 Jan 1922

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An analysis of 927 Cases of Myoma Uteri and Myopathic Lesions.
JOHN G CLARK M D and FLOYD E KEESE M D Philadelphia
J I M I Vol 79 No 7 p 546 August 12 1922

The Value of Radium in the Treatment of Cancer. (Tor)
Attended by the Radium Institute of the University of
Paris in *The Radium Therapist* Vol I No 9 Sept 1922

Radium Emanations in Exophthalmic Goiter. WALLACE I FERRY
M D San Francisco *J I M I* Vol 79 No 1 July 1 1922 Re
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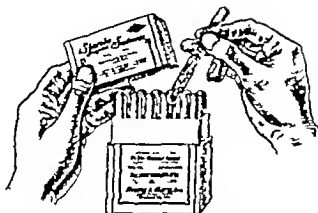
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SUTURE MAKERS TO THE SURGICAL NOBILITY

SINCE 1907



STANDARD PACKAGE

Containing One Dozen Types of a Kind and Size

Discount

THIS standard wholesale discount of 25% from list prices is accorded hospitals and surgeons on any quantity of sutures, of a kind or assorted, down to one gross. Under a gross the list prices are met.

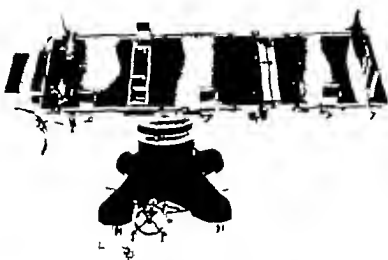
D&G sutures are sold by practically all of the responsible dealers in surgical supplies, or may be obtained, carriage paid, direct from Davis & Geck, Inc.



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OHIO Mobile Pedestal Operating Table No. 2

1 Horizontal Tilted Position

Surgeons generally consider the Trendelenburg and Reverse Trendelenburg positions as valuable additions to the Horizontal, and probably would not care to dispense with these positions on operating tables.

It is quite logical to suppose then, that an operating table that not only has these positions, but provides for slight or pronounced modifications of same will be welcomed by Surgeons as a genuine asset to operating equipment.

The Ohio is the only operating table so far known that provides for modifications of Horizontal Trendelenburg, Semi Trendelenburg and Reverse Trendelenburg positions by tilting to any angle.

The Ohio has a strong base with unusually wide spread, which absolutely prevents tipping over and is full 72 inches in length not including headrest.

A full investigation of the merits of this unusual table should be made by every surgeon.

The Ohio No. 2 is mounted on Cast Porcelain Base and equipped with special combination ball-bearing and cone-bearing casters. Top of Polished Monel Metal which will not rust or corrode. Table elevated to 42" by hydraulic lift. All controls at head of table in easy reach of anesthetist. Table rotated to any field of vision. Complete with all attachments. Write for catalog.

Note—The Ohio will be shown at Booth No. 23, Conley Plaza Hotel, Boston, during Twelfth Annual Session of Council of the American College of Surgeons Oct. 23-27, 1922.

(Patents Pending on Above Table)

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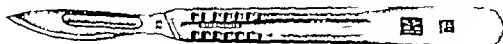
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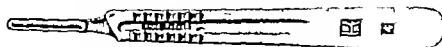
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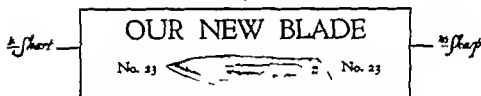


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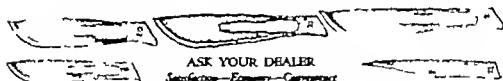


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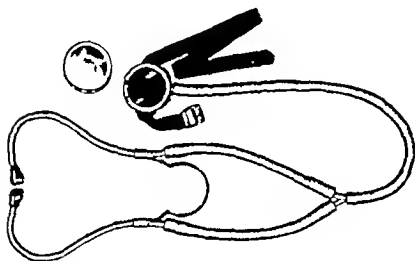
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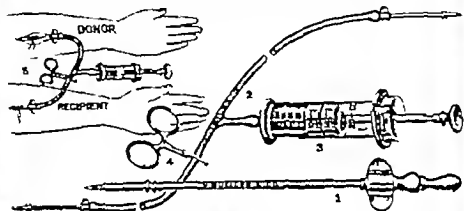
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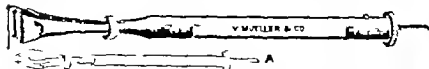
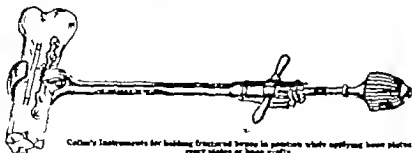
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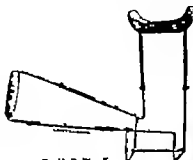
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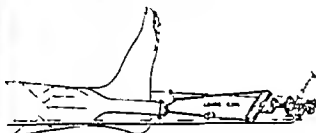
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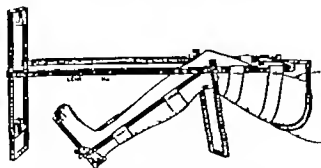
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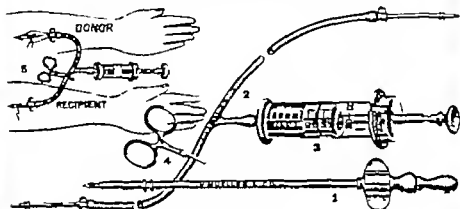
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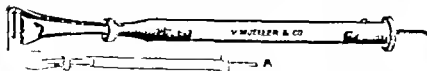
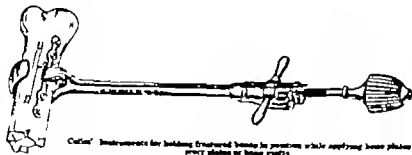
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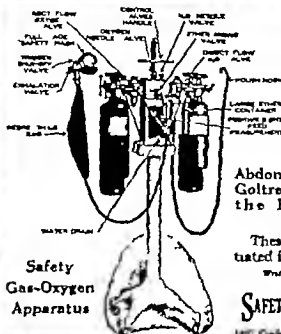


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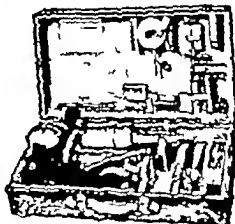
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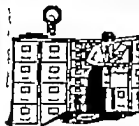
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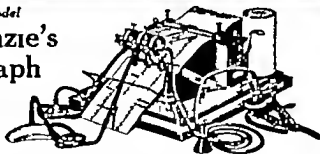
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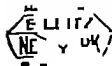
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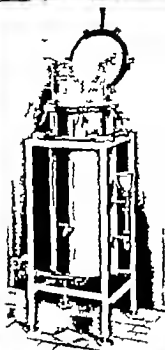
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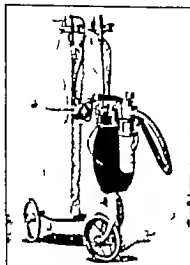
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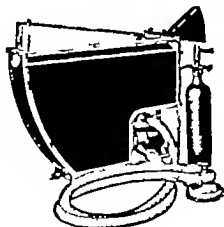
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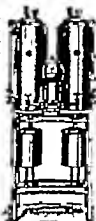
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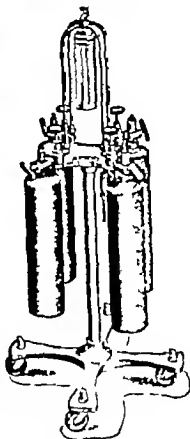
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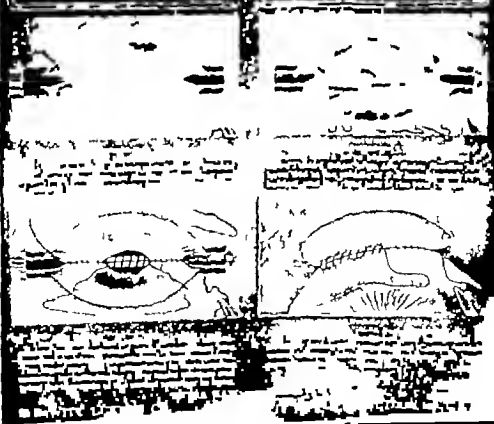
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Both ends sharp

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PATHOLOGICAL COMPLICATIONS WITH DUPLICATION OF THE RENAL PELVIS AND URETER (DOUBLE KIDNEY)¹

By WILLIAM F. BRASCH, M.D. ROCHESTER, MINNESOTA

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AND

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Fellow in Gynecology The Mayo Foundation

ANOMALIES in the urinary tract of themselves are of no clinical significance. It is only when some pathological complication occurs that their recognition becomes of clinical as well as surgical importance. Pathological and particularly surgical complications are prone to develop in the presence of such anomalies and their clinical discovery is, therefore, comparatively frequent.

The most common anomaly in the urinary tract is duplication of the renal pelvis and ureter; such duplication may be unilateral or bilateral.

As comparatively common is evident from the literature in fact it is so common that its discovery is not generally reported unless some unusual incident accompanies it. An excellent review of 300 cases largely collected from the literature is given by Merz in a recent series of papers. It is of interest that in 27 per cent of these cases the duplication was bilateral. The comparatively high incidence of ectopic ending of the duplicated ureter as reported in the literature is also of unusual interest. This occurred in 42 (30 per cent) of a series of 140 patients having complete ureteral duplication.

One hundred forty-four patients with duplication of the renal pelvis and ureter were observed in the Mayo Clinic from 1907 to 1922. The conditions were divided anatomically into unilateral 135 (94 per cent) and bilateral, 9 (6 per cent). The duplication of the ureter was subdivided into complete unilateral, 36 (25 per cent); incomplete unilateral, 99 (68.7 per cent); complete bilateral, 8 (5.5 per cent); and incomplete bilateral, 1 (0.7 per cent). In the complete unilateral duplications there was an ectopic ending of the duplicated ureter in 3 cases (3 per cent). Doubtless the relative occurrence of bilateral duplication reported in this series is not exact, particularly in relation to the occurrence of partial duplication of the ureter. Nevertheless it is hardly possible that the percentage of error in our cases —

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duplicated ureter as reported in the literature probably is also exaggerated and can be similarly explained.



Fig. (Case 18 No. 1) Extensive hydronephrosis of both segments of double kidney. The ureters are fused at the anteroposterior junction.

Pathological Complication with Dislocation of the Renal Pelvis and Ureter—W. H. and F. Bronck and Albert J. Schell, Jr.



Fig. 2

Fig. 2 (Case 1399670) Partial duplication of kidney with normal ureteric calices

Fig. 3 (Case 124870) Duplication with fusion of ureters in the upper third



Fig. 3

Fig. 3 (Case 124870) Duplication with fusion of ureters in the upper third



Fig. 3

Fig. 3 (Case 124870) Duplication with fusion of ureters in the upper third

found. In cases of infection the intervening tissues invariably showed round-cell infiltration and fibrosis, and in a few destruction of the parenchymal or tubular cells. These pathological cellular changes extended into the apparently normal segment to a variable extent.

DIAGNOSIS

As a rule under normal conditions, complete duplication of the pelvis and ureter can be diagnosed with comparative ease. The condition is usually recognized by cystoscopic inspection, or more definitely by the aid of lead catheters and the pyelo-ureterogram (Fig. 3). If the duplication of the ureter is incomplete and occurs above the bladder it cannot be discovered unless a routine pyelo-ureterogram is made. The presence of a pathological complication in one or both segments and the resulting deformity may render recognition of the condition exceedingly difficult.

Cystoscopic inspection. The cystoscopist accustomed to finding one ureteral opening on each side of the trigone does not usually look for a third. The careful observer how-

ever should always be on the lookout for the third orifice. The duplicated orifices are usually situated at the normal site in the lateral portion of the trigone separated by a distance of 1 to 2 centimeters. They are both, as a rule, easily seen in the normal bladder in the comparatively small field of the direct vision cystoscope. The openings may however be very widely separated and are occasionally situated in unusual portions of the bladder. When they are widely separated the cystoscopist is not always to blame for failure to find the supernumerary orifice and consequently overlook the duplication.

An aberrant ureter opening into the urethra or vagina, may be difficult to find but the use of indigocarmine as suggested by

explained should suggest the possibility of the ectopic opening of an accessory ureter.

If no catheter

ANATOMY

The position of the kidney with duplicated pelvis and its relation to the surrounding tissues are usually normal. The double kidney which is usually larger than normal varies in size, as a rule with the distance

the two segments as in a case described by Marion. Although there may be a definite external division of the two renal segments and the pelvis may be widely separated, our microscopic examination of the intervening tissues showed that there was no apparent division in the cellular structure of the two segments. In an occasional case the two pelvises are so close together that a partial resection is impossible. When external demarcation of the two segments exists, the upper segment is, in most cases, smaller than the lower. Even though the double kidney is

of one segment is usually equal to that of the other. In two instances the phenolsulphone-phthalein return from each segment was 7 per cent in 15 minutes.

The division of the tip of the renal bud

large as the original. As a result of ureteral obstruction in this type of case, hydronephrosis, when it occurs, will involve both pelvises. Duplication of the pelvis may be said to be complete only when the several pelvises or their portions have separate ureters or ureteral divisions. Sometimes the renal bud divides into three or four separate elongated calices, each of which has a separate branch running to the ureter; these unite

just beyond the hilum without forming a true pelvis. In one of the cases of this series (Case 9-A308206) the pelvis was entirely extra-renal, situated about 6 centimeters from the hilum of the kidney and above it the two major calices extended into the renal substance where they divided into the minor calices. Occasionally the ureteral divisions

obviously impossible (Fig. 1).

In cases of complete duplication of the ureter crossing often occurs just above the bladder and also below the ureteropelvic juncture, but this is probably not of clinical importance. Often there is only one crossing or none at all; occasionally the two ureters are wound around each other or they are in

with the attached ureter. As a rule the ureters leave the pelvis at a normal angle. In incomplete duplication the ureteral division may occur at any level. In our series the upper one-third of the ureter was most often duplicated (Fig. 2). Ectopic ending of an aberrant ureter has been described as occurring in the vagina, urethra, seminal vesicle, ejaculatory ducts, and in the anatomical areas represented by the permanent disposition of the Wolffian duct. In our series ectopic ending was found in the urethra in two instances and in the vagina in one.

HISTOLOGICAL STRUCTURE

Sections taken from the interrenal tissue in most cases show complete histological unity of the two segments. In some cases the capsule dips down into the renal mass, causing a partial division of the renal tissue. In the specimens examined glomeruli were commonly found in the parenchyma between the two pelvises. In one case the tubules of the two segments were adjacent but definitely separated, each associated with its own glomerulus. Various transitions from an almost complete separation by fibrous tissue to an indistinguishable intermingling of parts were



Fig. 5 (Case 120333) Opaque catheters inserted into both pelvis of double kidney. The lower pelvis injected with sodium bromide.



Fig. 6 (Case 120600) Complete bilateral duplication. Opaque catheters inserted in right ureter. Pelvis of the left kidney injected with sodium bromide.

ureterogram offers the only method by which such partial duplication can be determined (Fig. 7). With incomplete duplication of the ureter even though the end of the catheter is in one of the pelvis, the injected bromide solution will usually flow back alongside the catheter so as to outline the divisions of the ureter and the second pelvis as well. When the ureteral division is close to the bladder the second ureter may be outlined by resuction through the partially withdrawn catheter as is routinely done at the clinic in pyelo-ureterography.

The relation of the two pelvis as outlined in the pyelogram may be of value in determining (1) the distance separating them (2) direct communication and (3) the relative size. By routine pyelo-ureterography at the time of cystoscopy incomplete duplication undoubtedly will be discovered more often in the future. It is of practical importance to ascertain as nearly as possible the amount of tissue separating the two pelvis since if there is considerable surgical separation is

much easier. There is usually a marked difference in the outline of the two pelvis as well as in the size. The smaller pelvis is usually situated cephalad and its calices are smaller than normal in size and contour (Fig. 8). If a small pelvis is outlined in the pyelogram and particularly if it is high lying, the possibility of duplication with occlusion of the other ureter and pelvis must be considered and a search made for evidence. Obliteration of one branch of a double ureter may be surmised when the branch of the ureter leading to the normal pelvis is smaller than the combined ureter. The point of ureteral division may be indicated by a localized irregularity in cases in which the smaller normal branch leaves the combined ureter. Even though data from cystoscopic inspection and ureteral catheterization are negative, the existence of duplicated pelvis and ureters must be considered if (1) the patient's recent history is suggestive of renal involvement (2) there is much pus in the urine without apparent cause, being found on cystoscopic



Fig. 4. a, Catheterizing guide for three catheters. b, End of catheterizing guide.

characteristics. Occasionally one or both

the average lens cystoscope I used. When

two ureteral openings may be found in the usual position on each side of the trigone

formity of the bladder and changes in the mucosa adjacent to the affected orifice may obscure them. In cases of atrophy of the

ureters is not of much practical importance except with regard to the existence of pathological complications in the ureter. The usual method of catheterizing the three ureters consists of a preliminary catheterization of one followed by removal of the cystoscope and its reintroduction in order to catheterize the other two. The procedure which may be attended by technical difficulties and discomfort to the patient can be

ters (Fig. 4). The question may arise, in cases of duplicated pelvis, as to whether there is a direct connection between the two pelves. This can readily be ascertained by injecting a solution colored with methylene blue into one catheter. If the dye returns immediately from the second catheter, it is quite evident that the separation of the two pelves is incomplete. Further corroboration is available by means of pyelography. If the two ureters unite soon after leaving their respective openings, as occurred in one case previously reported (2, 3), the second catheter introduced will meet the obstruction at the point of union. If there is a single opening and the ureter is divided in the upper portion, obstruction, or any other evidence of the division is seldom found by the ureteral catheter.

It is often of value to estimate the comparative function in the two segments of the double kidney. In the diseased segment the extent of the pathological process may be estimated if the dye secretion is absent or greatly diminished. Of even greater value is the determination of the degree of function in the supposedly normal segment. If the return of the dye from this segment is greatly diminished, heminephrectomy should, of course, not be considered, even though the exterior of the segment appears fairly normal.

Prela-ureterography. More exact data concerning the anatomical structure of the duplicated pelvis and ureter as well as of pathological complications may be obtained by combining the roentgen-ray and the cystoscope as in the pyelogram and the ureterogram (Figs. 5 and 6). If duplication is complete, the lead catheter will outline the course of the two ureters and the position of the two pelves in the prelo-ureterogram. The lead catheter will be of little value, however, if the ureter is divided above the bladder, since it can follow but one branch. The pyelo-



Fig. 7

Fig. 7 (Case 1377876) Three separate pelvises leading from common ureter



Fig. 8

Fig. 8 (Case 1390773) Complete unilateral duplication moderate by hydronephrosis in the lower segment



Fig. 9

Fig. 9 (Case 1390353) The upper pelvis is injected with sodium bromide. The lower pelvis is filled with stones

tomy. Although infection particularly if it is chronic may be largely confined to the primary segment it usually will invade the other segment to such an extent that nephrectomy is advisable. Conservative operation is permissible only in the presence of lithiasis, infection, and caliculi.

Ethotomy offers no greater technical difficulties in the double kidney than in the normal. A small stone in the pelvis, however, may be easily overlooked unless the duplication is recognized. In one case in our series ligation of an anomalous renal blood vessel which constricted one of the ureters was sufficient permanently to remove obstruction to urinary drainage. In the case in which an aberrant ureter ended in the vagina the secretion from one segment was markedly diminished. The ureter was ligated and the patient had no complications other than the usual reaction following ligation. This would suggest the possibility of treating hydronephrosis in the

double kidney when not too extensive or infected by merely ligating the ureter of the affected segment.

Heminephrectomy in Double Kidney
segment seems to

opportunities for the operation are limited and the anatomical conditions are often not recognized. Heminephrectomy has seldom been performed in the past. If there is considerable pyelonephritis in the resected segment infection often spreads to the remaining portion after heminephrectomy the urine which may have been normal prior to the first operation becomes infected and subsequent nephrectomy is necessary.

Heminephrectomy has been reported as successful by Albarran, Le Dentu, Lennander, Jawliff, Mayo, Rumpel, Young, and Herrick. Albarran reported a case of a double kidney on the left side in which there was a thin

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of recent occlusion of one branch of a duplicated ureter it is easily possible that a pathological complication in the involved pelvis would be overlooked. In a pyelogram the shadows of stones or of a calcareous area of tuberculous situated in the occluded portion of the double kidney might appear to be extrarenal because of their distance from the outlined pelvis (Fig. 9). The same error would of course arise in the presence of complete duplication of the ureter when the second orifice is overlooked on cystoscopic examination.

PATHOLOGICAL COMPLICATIONS

Mertz found that pathological complications occurred — 9

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logical conditions, into Group 1: those who were operated on, 30. Group 2: those having definite pathological lesions who were not

pathological complication in whom the discovery of the condition was purely accidental 61 (42 per cent). Fifty-four (37.5 per cent) of the 144 patients were found to be suffering with definite pathological complications (Groups 1 and 2).

In the 30 patients in Group 1 who were operated on, the various lesions described were ureteral obstruction with hydrocephalus or pyonephrosis in 8 renal tuberculous in 6 renal lithiasis in 7 ureteral lithiasis in 3 and atrophic pyelonephritis in 4. In one case the aberrant ureter from the upper segment opened into the vagina. In another an anomalous vessel crossed the ureter causing obstruction. The lower segment of the kidney was primarily involved in 9, and the upper in 5, both segments seemed equally involved in 13. It is evident that the pathological complication is confined largely, if not

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shown in 3 ureteral stones passed after manipulation in 3 and stone in the lower pelvis of a double kidney left intact because of various complications, in 3.

The fact that 15 of the 24 patients had chronic renal infection is suggestive of possible lowered resistance because of the anatomical deformity. The three stones removed by manipulation were all near the ureterovesical juncture and not related to the division of the ureter.

The 29 patients in whom no definite evi-

the pain was accompanied by fever and chills with temporary urinary symptoms. Neither by cystoscopic examination nor urography could definite evidence of a lesion be demonstrated although in several instances the pyelogram showed moderate distention of the calices. General examination did not reveal extrarenal cause of the symptoms in the majority of cases. It would seem logical to assume that the anatomical deformity was subject to temporary urinary obstruction or infection.

SURGICAL TREATMENT

Thirty operations were performed on patients with duplicated pelvis as follows:

| | Case |
|--|------|
| Nephrectomy | 5 |
| Heminephrectomy (two requiring complete nephrectomy later) | 4 |
| Pelvicolithotomy | 3 |
| — | 1 |
| — | 1 |

The surgical treatment of pathological complications other than lithiasis, which affect the double kidney will, in the majority of cases, be radical, necessitating nephrec-

favorable opportunity could be discovered. However microscopic examination of every such kidney removed showed that isolated giant cells had invaded the apparently normal tissue adjacent to the area of tuberculosis.

Chronic tuberculosis confined to one pole of a single kidney, if caseated or fibrous and walled off from the remaining apparently normal renal tissue may easily be confused with tuberculosis involving one segment of a double kidney. The pelvis of the diseased segment may be obliterated and the ureter be atrophied or involved in localized perirenal adhesions and thus difficult to identify. The original pelvic duplication of the kidney doubtless has been occasionally overlooked.

Atrophic pyelonephritis The atrophic or cicatricial form of pyelonephritis is of comparatively common occurrence and may offer unusual difficulty in clinical diagnosis. Although the process may be confined largely to one segment the other is often also involved so that in most cases nephrectomy is necessary. In the pyelogram the usual small abbreviated pelvis of the upper segment of a normal double kidney may be confused with the contracted pelvis usually observed in atrophic pyelonephritis in the single kidney. A differential phenolsulphonephthalein estimate should establish the diagnosis since in atrophic pyelonephritis return of the dye is greatly reduced varying from a trace to 1 or 2 per cent in 15 minutes; in a duplicated pelvis the return is generally at least 6 or 8 per cent.

HEMINEPHECTOMY FOUR CASES

CASE 1 (No. 528) Miss K. M. age 37 came to the Clinic because of frequent short attacks of pain on the right side. For the last 3 years pain at times had become very severe and discomfort had been almost constant. Appendectomy had been performed but the character of the pain remained unchanged.

The physical examination was negative. The urine contained a few pus cells, and the two-hour

urine and ureters were found to be normal. Phenolsulphonephthalein return in 15 minutes was 13 per cent from the left ureter and 5 per cent from the right. A pyelogram revealed a double pelvis on the right; the branched irregular shadow was obscured in the lower pelvis

A diagnosis of a double right kidney with multiple stones in the lower pelvis was made.

At operation a moderately enlarged kidney was found with two pelves and two ureters which united

antrum at the lowest angle of the incision drained a few drops of pus and then closed. Eighteen months later the patient was perfectly well.

CASE 2 (No. 529) Mrs. M. C. T. age 37

creased

ureter above. The pelvis connecting with this ureter was apparently not dilated; the lower pelvis and ureter were normal. A diagnosis was made of double kidney and ureter with a hydro-ureter draining the cephalad segment.

chills and fever. Seven years before he had had a short spell of hematuria and had passed a small stone. For the last 3 years he had had intermittent attacks of left abdominal pain.

Physical examination revealed tenderness in the left loin. The urine contained pus and blood. The

intimus of connecting tissue. The lower segment was normal the upper segment was pyonephrotic and was successfully resected. Le Deutu resected an upper segment which contained a small dilated pelvis although the lower segment appeared to be fibrous and showed chronic nephritis, it was allowed to remain. A fistula persisted for 4 months. Leander resected a lower segment which he described as being pyonephrotic. Pawloff described the resection of one segment for hydronephrosis. Young resected an upper segment which was atrophic and contained a branched stone.

In two cases in this series (Cases 3 and 4) primary heminephrectomy was performed but evidence of renal infection and persistence of symptoms made it necessary to perform a secondary nephrectomy at the time of primary operation the remaining segment had appeared to be normal. In Case 3 the urine collected from the segment prior to operation was normal and the phenolsulphonephthalein excretion 8 per cent in 15 minutes. Heminephrectomy had been performed because of a small infected hydronephrosis and stone in the lower segment with apparently successful results. Within a few months the patient had dull pain referred to the affected kidney and other evidences of renal infection. Seven months after operation catheterization of the remaining segment showed marked renal infection only a trace of phenolsulphonephthalein was returned in 15 minutes. Nephrectomy of the remaining segment was performed and examination showed diffuse pyelonephritis with atrophy. It is evident that heminephrectomy should not be attempted unless the pathological condition is confined entirely to one segment and clinical evidence shows definitely that the remaining segment is normal and functioning. Even under such favorable circumstances infection may invade the remaining segment, necessitating a secondary operation. With proper suturing the postoperative hemorrhage should be negligible. If infection remains in the tissues however a sinus may persist indefinitely and reopen at intervals. The healing process resulting after heminephrectomy was clearly shown in the segment of a double

kidney which was subsequently removed. The resected surface though pitted in some areas was smooth and had assumed the normal rounded contour of one of the renal poles. The pathological process had involved only the tissues immediately adjacent to the line of incision. There was moderate lymphocytic infiltration in some areas possibly caused by absorbed suture materials. The glomeruli were somewhat clumped and the de-

cision were apparently normal. Factors rendering operation easier and favorably influencing the results are (1) considerable distance separating the two pelvis (2) definite division of the two segments by a cicatricial band and definite confinement of the disease to one segment and (3) chronic and cicatricial nature of the pathological lesion.

Hydronephrosis. The most common lesion requiring surgical treatment is hydronephrosis caused usually by the obstruction of one ureter. Whether this occurs at the point where the ureters cross one another and is the result of this crossing as suggested by Pawloff has not been definitely proved. It seems probable however that in some cases the ureteral obstruction is the result of stricture due to congenital anatomical defect. In several of the cases herein reported stricture in the lower ureter was associated with marked dilatation of the ureter above comparatively little dilatation of the renal pelvis itself and marked cicatricial pyelonephritis in the peripelvic renal tissue. In cases of large hydronephrosis the surrounding tissues usually become involved and atrophied and the infection may spread to the other renal segment.

Tuberculosis. In six cases of Group 1 nephrectomy was performed for tuberculosis. In four the disease was largely confined to the lower segment. In each case a distinct cicatricial band separated the two segments, which evidently represented nature's determined effort to confine the disease to the segment in which it originated. If partial resection of the kidney for a localized area of tuberculosis could ever be considered no more

colic associated with chills, fever and pyuria, beginning 8 years before after childbirth, and lasting about 2 years. During the last 6 years pain had been intermittent in the upper right abdominal quadrant. Her gall bladder had been explored but it had been found normal.

with normal appearing urine from both sides. The phenolsulphonephthalein return was 25 per cent from the left ureter in 5 minutes and 75 per cent from the right. A pyelogram of the right kidney revealed duplication of the pelvis and ureter with

about 8 centimeters from the kidney but the point of bifurcation was not found. The upper part of the

CASE 8 (A234432) Mr R R P age 46 came to the Clinic because of intermittent periods of hematuria of 5 years duration. For several months, he

untreated for this and lower. A urologist in

phenolsulphonephthalein return was 10 per cent

draining the two pelvis united about 3 centimeters below the lower pelvis. A small papillary cystadenoma was enucleated from the renal cortex and two small stones were removed from the lower pelvis.

Six months later the patient returned to the Clinic. He had gained 15 pounds and had no urinary complaint, but he had a constant dull pain in his lower right quadrant. The roentgenogram contained a shadow in the region of the right kidney. Cystoscopy and pyelography located the stone in the lower pelvis. Both the upper and lower pelvis showed moderate inflammatory dilatation.

At the second operation

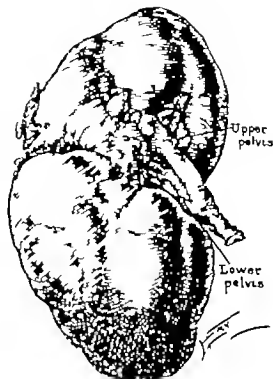


Fig. 1 (Case 8-A234432) Double kidney with dilated infected lower segment, containing many cortical abscesses. The upper and lower segments are separated from one another by a deep cleft.

throughout both portions of the kidney (Fig. 11). Three years later the patient was perfectly well although at times he had slight pain in the lower abdomen.

CASE 9 (A308306) Mr A K age 45 came to the Clinic on account of numerous attacks of left renal colic and almost constant dull heavy pain in the left

was made

At operation a large kidney with two moderately

ing was dilated and exuded cloudy fluid; the urine from the lower was normal. A roentgenogram taken after the insertion of four lead catheters showed complete bilateral duplication; the pyelogram taken on the right side showed that the upper and lower pelvis were connected by a common calyx. A left pyelo-

ature and the wound drained freely. One month

proved rapidly and 3 years later was in good health.

NEPHRECTOMY FOR HYDRONEPHROSIS SIX CASES

line of demarcation between the two portions of the kidney; both segments had a separate blood supply. The ureter and blood vessels of the lower half were tied and cut and the lower portion of the kidney was resected. The patient recovered from the operation rapidly.

CASE 5 (A3801) M D, a baby girl, age 9 months, was brought to the Clinic on account of abdominal cramps and fever of 4 weeks' duration.

recent health.

CASE 6 (A15333) Mrs B C, age 5, came to the Clinic complaining that she had been feeling

attacks of colic, with some vomiting, associated with frequency.

The physical examination was negative. The

contained pus, from the right the urine was normal. The phenolsulphonephthalein return from the left kidney was percent in 3 minutes. A diagnosis of

most completely obstructed at the juncture by a

segment was smaller than the lower and the upper was markedly dilated and thickened; the lower pelvis was only slightly increased in size but showed moderate fibrosis. The patient's convalescence was uneventful, and 2 months later she was in good health.

CASE 7 (A 9307) Mrs C D, age 34, came to the Clinic complaining of attacks of right abdominal

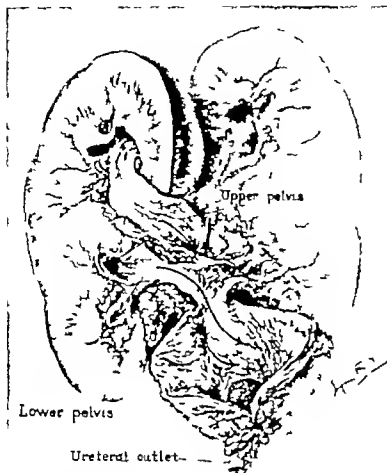


FIG. 3 (Case 9, 190100) Section of double kidney showing renal pelvis blocked at its outlet by a stone.

Several days after the onset of the bleed-

A left nephrectomy was performed. The two pelvises of the double kidney were found to be separated from one another by a heavy band of renal tissue, a

enlarged. The urine contained both pus and

contained blood that from the right was normal. The phenolsulphonephthalein return was 2 per cent from the right ureter in 15 minutes and 10 per cent from the left. A left pyelogram revealed duplica-

into the lower portion through a narrow, tapering connection. The patient recovered from the operation and is now well.

CASE 13 (1900002) Mr. C. A. T. age 33 came to the Clinic because of indefinite pain in the lower abdomen of early duration. Appendectomy had been performed without relief. During the last year he had had moderate pain in the left loin, especially

and at the lower pelvis was made

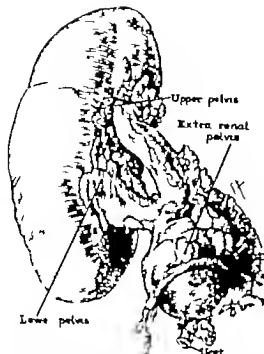


FIG. 2 (Case 9-130806) Protrusion of mass of the ureter or pelvis situated 2 cm from the kidney and attached to it by elongated arterial divisions. Lack of division drains separate renal segment.

continued next

further trouble

CASE 1 (1376437) Miss M J age 32 came

noted that the pain was entirely anterior and not at all suggestive of renal involvement

The urinalysis was practically negative. The phenolsulphonephthalein return was 50 per cent in hours and 15 minutes. Roentgenograms of the

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At operation the renal pelvis was found to be

uremia. The patient had normal convalescence and two months later was in good health

NEPHRECTOMY FOR TUBERCULOSIS SIX CASES

CASE 11 (131845) Mr R F R age 37 came to the Clinic because of frequency, dysuria, and occasional attacks of moderate pain in the left renal area for the last 3 years. He had had both testicles removed for tuberculosis 7 years before.

The left abdominal wall was rigid. The renal

and other

tion of the ureters was not found. The lower kidney and pelvis composed only about one fourth of the entire mass. The pelvis was thickened and contracted and the surrounding renal tissue was almost completely destroyed by an extensive tuberculous

came to the Clinic complaining of dull ache in her back of 3 years duration. Two weeks before, she had noticed blood in the urine. This had been in-

seemed only a few dilated calices and a distended ureter. A diagnosis of duplication of the left kidney with tuberculosis of the lower segment was made.

At operation a long, thin, tapering kidney with a definite line of division on the anterior surface was removed. There were two pelves and two ureters. The segment between the two pelves showed extensive tuberculous caseation which extended to and

patient had an uneventful convalescence and left the hospital in good condition.

CASE 16 (A377195) Mr G V G, age 35, came to the Clinic with symptoms beginning 15 years before with slight urinary frequency at irregular intervals. Seven years before he had had a period of dysuria with increased frequency and very cloudy urine which had continued over a period of several months. Since then he had had diminished urinary disturbance with soreness and dull ache in the ure-

General physical examination, including roent-

revealed a bladder with normal capacity and save for a few areas of slight inflammation, comparatively normal. The left ureteral opening was slightly eroded, with an inflamed area of mucosa and granulation tissue around it. Obstruction was met by the catheter introduced into the left ureter at a distance of 2

The general examination was negative save for moderate chronic bilateral tuberculous epididymitis. The left lobe of the prostate was nodular. Roentgenograms of the urinary tract and chest were negative. A moderate amount of pus was found in the urine, and after repeated stains, acid-fast bacilli were found. The phenolsulphonphthalein return was 50 per cent in two hours. Cystoscopic examination revealed a slight cystitis. The urine from both ureters appeared to be normal. A catheterized

ogram of the left side showed marked dilatation of the ureter, the pelvis and calices were abnormally small. A diagnosis was made of tuberculosis of the left kidney.

At operation a double kidney with tuberculosis in the lower segment was found. The upper portion of the kidney appeared to be normal, while the

with destruction of the lower pelvis (?) atrophic pyelonephritis (?) and tuberculosis of the left kidney (?)

At operation a double kidney with duplication of the pelvis and ureter was apparent. The lower pole of the kidney was atrophic and cicatricial. The two parts of the kidney seemed quite distinct with a definite zone of demarcation. It was thought at first that the lower portion was atrophic as the result of cicatricial pyelonephritis, since no definite evidence of tuberculosis had so far been discovered. The lower portion was then resected without much difficulty. On microscopic section of the renal tissue at the line of excision, areas were found containing atypical tubercles and giant cells. The remaining portion of the kidney was then removed. The

NEPHRECTOMY FOR ATROPHIC PYELONEPHRI- TIS THREE CASES

CASE 17 (A18855) Mr H. K. E., age 26, came to the Clinic because of pain in the left renal

blood the roentgenogram was negative. Cystoscopic examination revealed diffuse cystitis with pus cells and blood coming from the left ureteral opening.



Fig. 14 (Case 13-433051) Extensive caseating tuberculous involving both segments of double kidney

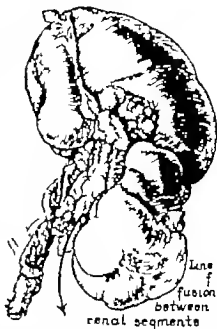


Fig. 15 (Case 6-437705) Extensive tuberculous of the lower segment of double kidney. The segments are almost completely separated from one another. The upper segment contains few scattered tubercles and giant cells.

size and were divided by a band of parenchymatous tissue 1 centimeter wide (Fig. 14). Three weeks later the left epididymis was removed and found to be tuberculous. The patient's convalescence was uneventful and he left the hospital in good condition.

CASE 14. (4330574) Mrs. H. E. C. age 50, came to the Clinic because of frequency and dysuria and occasional low abdominal pain, of 3 years duration.

The physical examination was negative. The urine contained a moderate amount of pus and bacilli of tuberculosis. Roentgenogram of the kidneys showed few calcified foci in the right renal

emitted only an occasional spurt of turbid urine. The ureter and kidney on the right were both normal. On catheterization of the two left ureters a stricture was encountered in the outer ureter.

In tuberculous of double kidneys gross evidence of the disease is generally confined to one segment, usually the lower but in all cases histological examination reveals tubercles in the intervening renal tissue and extending into the remaining segment.

Occasionally when only one pelvis is out

favorable cases. The possibility of infection extending to the remaining half of the resected kidney which may necessitate subsequent complete nephrectomy must be considered.

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5. La

surgical treatment, and in 27 evidence of disease was doubtful. Only 61 (42 per cent) of the patients were without pathological complications and the anomaly was discovered in the examination for other conditions.

Fifteen of the 30 patients operated on submitted to primary nephrectomies and 4 to heminephrectomies. 2 of these later required complete nephrectomy. Six pyelolithotomies and three ureterolithotomies were performed. In one patient hydronephrosis was relieved by the cutting of an aberrant vessel and in another symptoms were relieved by the ligation of an aberrant ureter from the upper pole of a double kidney.

In the treatment of pathological complications in a double kidney the indication for heminephrectomy is limited to but a few

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The phenolsulphonephthalein return was 30 per

cent. The left kidney revealed a small contracted pelvis. On account of the high temperature and tenderness over the left kidney a diagnosis of septic left kidney with atrophy was made.

At operation a kidney normal in size, with two pelves and ureters was removed. The lower half of the kidney was studded with many small cortical abscesses. The pelvis draining this portion was dilated and almost completely filled with fat, which would account for the contracted appearance of the pyelogram. A slight calculus on the anterior sur-

face. The upper portion was almost completely destroyed, the surfaces of the dilated calices and pelves were necrosed. The pelvis of the lower half was thickened and contracted and the renal tissue had been replaced almost completely by fat and fibrous tissue. Atrophy of all the renal tissue was practically complete. The patient made a rapid recovery after operation and, one year later was perfectly well.

CASE 18. (192501) Mrs. T. L. M., age 47, came

At operation a contracted septic kidney was

completely destroyed by fibrosis. The patient made

a prompt recovery after the operation and was well 4 years later.

CASE 19. (192824) Mrs. C. I. W., age 50

episodes of frequency and dysuria and, on several occasions, chills and fever.

At physical examination an area in the left lumbar region was found to be tender. The temperature was 102°. The urine contained a large amount of

SUMMARY

One hundred forty-four patients with duplication of the renal pelvis and ureter have been observed at the Mayo Clinic. The incidence of aberrant and bilateral duplications of ureters and pelves reported in the literature is relatively too high owing to the tendency to report the more unusual cases. Of the patients in this series the duplication was unilateral in 135 (94 per cent) and bilateral in 9 (6 per cent). Of the 135 patients with unilateral duplication 36 (25 per cent) had complete duplication and 99 (68.7 per cent) had incomplete duplication. Of the 9 patients with bilateral duplications 8 had complete duplication and 1 had incomplete.

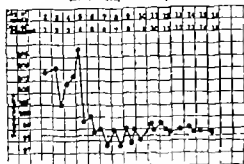
Duplication may vary from duplication confined to the renal pelvis to duplicate pelves with separate ureters opening into the bladder. The pelves are generally unequal in size, the upper being the smaller and are separated by a bridge of normal renal cortex.

more often if a careful search is routinely made for anomaly at the time of cystoscopic inspection. In cases of partial duplication the diagnosis is made only by means of a pyelo-ureterogram.

The lower segment is primarily involved more often than the upper.

Hydronephrosis is the most common pathological complication and is due to ureteral obstruction generally in the region of the juncture of the two ureters in cases of incomplete duplication.

Case 2718471, S.S., Sept. 22



T C P Pulse Temp

Case 222171, S.S., Sept. 9

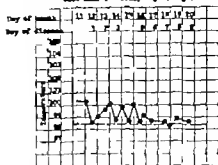


Fig Case Postoperative course uneventful

After 1 week paracentesis had been performed by the home physician. The patient had felt better

superior canal wall drooped definitely. The temperature was 104. Kernig's sign was questionable. On motion of the head definite tenderness but no rigidity was noted. The leucocytes numbered 16,000. A diagnosis was made of suppurative otitis media with mastoiditis and thrombosis of the lateral sinus.

April 22 at operation the cortex was found to be eburnated, the mastoid large and of the small-cell variety, all the cells were bleeding and filled with granulation. The condition was quite typical of streptococcal infection. The wall of the sigmoid

mastoidectomy with ablation of the sigmoid sinus was performed. The blood culture was positive for streptococcus viridans. Seven days later the jugular vein was ligated (Fig. 3).

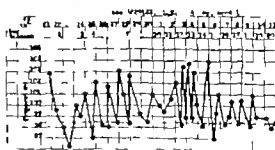
CASE 4. (A238280) Miss T. T., age 18, came to the Clinic July 11, 1918, because of discharge from the right ear of 3 years duration. She had had a mastoid operation 5 years before, but the discharge

had continued. She seldom had pain and only occasional vertigo. Douching the ear did not make her dizzy.

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a definite is a sinus into the mastoid antrum from which caseous material was removed. The end organ was intact. The patient was observed for several days in the out-patient service. Local

and a trum and middle ear were approached after the method of Stache. It was necessary to uncover the in in order to remove the disease process in Trautmann's triangle. The sinus wall appeared unusually dark and dry. Because of the sinus exposure the packing was not done in the usual manner through the canal (Fig. 4).



showing, result is shown at all the same. Seventeenth day blood transfusion 500 cubic centimeters, citrate method. From then on the convalescence as rapid.

INFECTION OF THE SIGMOID AND LATERAL SINUS

REPORT OF A SERIES OF NINETEEN CASES.

By HAROLD J. LILLIE, M.D., Rochester, Minnesota

Enroll in Undergraduate and Elementary Programs

Extension of infection from the middle ear

were large and tender. The right ear appeared normal, the left vestibule was eroded by purulent discharge from the canal. Pruritus and drooping were marked. The mastoid was not especially tender.

recover the majority will succumb if left to their own defensive mechanism. If timely operative interference is instituted the prognosis is relatively good. The recorded experience of previous observers has been helpful in the care of such patients, and I am reporting these 19 cases for the purpose of adding our clinical experience to the data on the subject.

The 19 patients were observed at the Mayo Clinic during the past 5 years in a series of more than 500 cases of mastoid disease in which operation was performed and more than 150,000 miscellaneous cases examined in the ear nose and throat section. The patients have been divided for discussion into four groups:

Group 1: Patients with involvement of the sigmoid sinus by phlebitis, or non-obliterating thrombosis.

Group 2. Patients with obliterating thrombosis

Group 3 Patients who died without submitting to operation

Group 4 Patients who died and in whom the disease was not recognized clinically

GROUP 1

CASE 1 (A-115641) C.S. a boy age 11 was charged.

fever but there was no history of chills 116 116

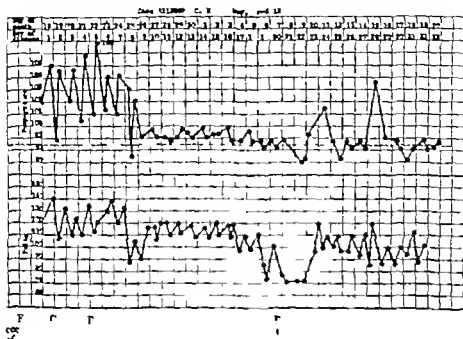
At the necropsy the lungs weighed from 20,000 to 31,000. A subacute nephritis was found. Diagnosis was made of perianal abscess with sinus involving ment

December 3: a complete mastoidectomy (complete exenteration of the mastoid cells) was performed on the left side with ablation of the sigmoid sinus. The

The urine contained casts and blood cells. The leucocyte count was 14,800. A diagnosis was made of suppurative otitis media, with mastoiditis and sinus involvement.

February 1: a subperiosteal abscess was opened. The mastoid cells were filled with infected granulation and pus. The knee of the glans was covered with granulation, the wall, which felt board-like, was opened and a mural clot encountered. The wound was ablated (Fig. 3).

CASE 3 (A729133) Mr L. M. age 18, came to the Clinic April 12 1918 because of discharge from



mastoid was of the hemorrhagic type. The exposed
sinus appeared normal and bled freely. Examination

was made 5 but well back, allowed to
bleed freely and then packed. The patient was in
good condition on leaving the operating room. The
pathological process in the sinus was sufficient
cause for the symptoms.

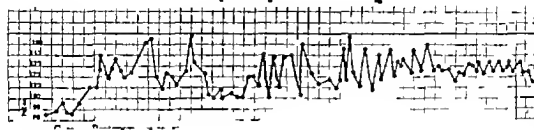
was found to be thrombosed down to this region.
Three hundred seventy five cubic centimeters of
blood was transfused without incident the same
afternoon the mother being the donor (Fig. 5).

It was necessary to choose the mastoid to
be operated on. There was little difference in
the appearance of the ears. The left was
slightly more tender over the emissary vein
and there were a few palpable glands in the
left upper cervical region. The patient was
so sick that the internist advised against

operation, particularly in the presence of
such virulent infection of the blood and the
leucopenia. Operation was probably not
necessary on the mastoid except to check
extension of the disease. The area of phlebitis
was not in the mastoid itself but posterior
to it and toward the torcular herophilli. The
ligation of the jugular vein and the trans-
fusion had a beneficial effect causing a def-
inite change in the patient's general appear-
ance. In this case also the pulse curve follows
the temperature curve.

The method of approach to the jugular vein
in this case was not so satisfactory as that
of incision along the anterior belly of the
sternomastoid muscle.

CASE 6 (A344315) M. B. a girl, age 14, was
examined in the Clinic, December 30, 1920. She



It is some in training

The severity of the patient's illness cannot adequately be described. In retrospect it was necessary to operate on this patient in the manner followed in order to remove the disease. The spontaneous hemorrhage from the sinus was unforeseen, although it was remarked at the time of the operation that something might be expected to happen to an uncovered sinus wall of such character

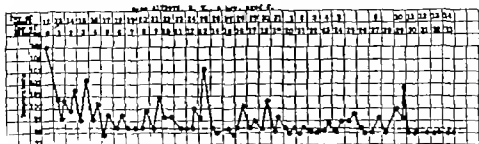
Case 5 (A 305) C E a boy age 12 was brought to the Clinic June 8, 1930 because of discharge from both ears. The onset of the trouble began 5 weeks before with pain in the right ear

3 weeks respectively after the onset, the boy had had chills and rise in temperature. An abscess had developed in the right leg accompanied by chills and a temperature of 104.

The patient was pale and presented septic facies. The canals of both ears contained a small amount of

blood and spinal fluid was negative. Blood transfusion and forced diet were used as supportive measures. As the patient's general condition grew worse the leucocyte count decreased. The serum was given for the foreign protein reaction. The specificity of the infection was never determined. The nephritis cleared decidedly as the general condition improved. It is interesting to note that the pulse curve followed the temperature curve

June 10, a complete mastoidectomy was performed on the left side and the sinus explored. The



ing under pressure. Removal of the cortex revealed a very extensive cavity extending over the temporaloparietal lobe, the cerebellum, and the knee of the sinus, which were uncovered to a fairly healthy appearance. The id an was found. 1. Incision occurred at both ends. One pack was placed over each end of the sinus and one in the mastoid cavity. Paracentesis was performed (Fig. 8).

SUMMARY OF CASES IN GROUP 1

The jugular vein was not operated on primarily in any of the 8 cases in this group. In 3 (Cases 3, 4, and 5) subsequent ligation was necessary because of the patients' condition. The temperature charts of these patients demonstrate their extreme illness.

The leucocyte count was relatively high except in Cases 2, 5, and 8, and in Cases 5 and 8 the condition was really leucopenia. One patient (Case 5) was extremely ill, and was found to have a very virulent infection of the blood stream due to hemolytic streptococcus.

Blood cultures were positive in Cases 3, 5, 7, and 8, while in Case 4, in which the patient was most critically ill, cultures were repeatedly negative. No two patients were infected with the same organisms, and no regular interval elapsed before the blood culture became negative.

The temperature was fairly typical of sepsis except in Cases 2, 6, and 8, in which it was almost afebrile.

Choked disc occurred in Cases 5, 6, and 7, probably the result of general toxemia. Blood transfusion was used as a supportive measure in Cases 1, 4, and 5, with a rather striking result in Case 3. This patient was infected with streptococcus viridans and it is possible that the donor may have been immune to this bacterium. It was apparent that a bacterial shower occurred into the blood stream at the time of a postoperative dressing in Cases 1, 4, 5, and 7.

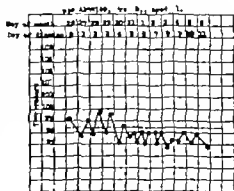


Fig. 8. C-8. Postoperative course uneventful.

Case A344418 R. 1st aged 34



felt that the operation could be delayed to await developments. Although obliterating thrombus was not found choked discs occurred.

Case 7 (A173075) D W., a boy age 8, was brought to the Clinic January 11 1921 because of discharge from the left ear of 8 weeks duration.

had begun to discharge and had continued for 3 days. About 10 days later severe pain had occurred behind the right ear followed by swelling, discharge and increased temperature. The right side of the

performed On uncovering the mastoid the whole

December 31 a complete mastoidectomy was performed with exploration of the right sinus

admitted in the Clinic May 23, 1921 after ear dis

revealed After tamponing under the bone edges the sinus was incised and a definite mural thrombus encountered this was sufficient to account for all the patient's symptoms Bleeding was free from

Spontaneous rupture had occurred the second day. Occasional tinnitus had been noted. The canal had been cleaned Tenderness over the mastoid had

The vein might have been ligated at the time of the mastoid operation, but with the patient in fairly good general condition it was

with peridural abscess

May 27 when the cortex was uncovered, many bleeding points appeared and when the outer table was removed a large quantity of pus oozed up, patient

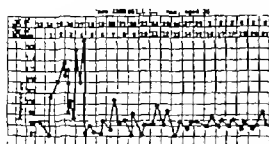


Fig. 11 Case 1 Postoperative course uneventful

that it was necessary to remove a large part of the petrous portion. Although the dura was exposed extensively the adhesions were not incised. The

sinus ablation and extensive decompression were performed. A wick drain was left deep in the ear. Small packs were placed over the sinus and in the rest of the wound. Culture of the blood showed streptococci, pneumococci, and micrococcus catarrhalis (Fig. 10).

This patient had almost all possible complications, involvement being the most extensive in the series. The labyrinthectomy was performed after the method of Neuman and was easily accomplished because the cholesteatoma had destroyed the bone to such an extent that the facial nerve lay free in the cavity. Touching the nerve made the face twitch. Paralysis which developed on the fifth day began to improve after about 3 weeks. It is significant that this patient had been treated for typhoid fever before coming to the Clinic.

CASE 11 (A75651) Mr L. L. age 13, came to the Clinic January 31, 1909, because of chronic suppurative otitis media with right mastoiditis.

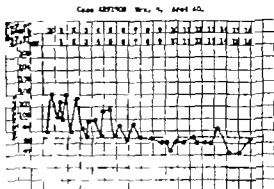


Fig. 12 Case 2 Postoperative course uneventful. The blood culture was negative on the fourth day.

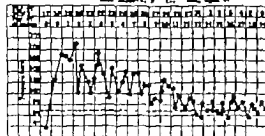
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Ket
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ly (Fig. 11)

There is nothing about the clinical course in this case that would not be considered typical and satisfactory. The thrombus was found in the lateral sinus and not in the bulb.

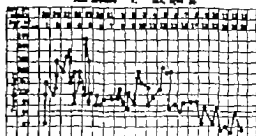
CASE (A70500) Mrs. A. W. R. age 40

used the probe to pass into the attic, releasing a

Case 1234567, 9 L., male, aged 47



Case 1234567, 9 L., male, aged 47



eration

Blood serum immune to streptococcus hemolyticus was injected intravenously on two occasions in Case 4. Blood culture in this case had been repeatedly negative. No systemic reaction occurred after the injection, but it is possible that there may have been

pneumonia

Case 10 (A340670) Mr N W age 36 came to the Clinic October 26 1933, complaining of severe pain in the right ear with chills and fever. The right ear had begun discharging pus several years before following a cold. Pain in the right ear

were the most critically in immunity complication was present in Case 5 but the patient recovered

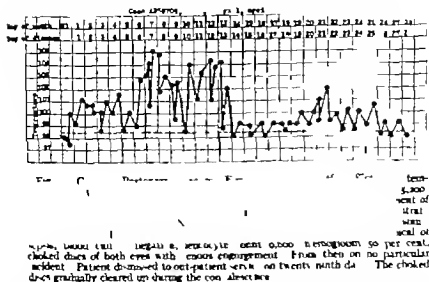
GROUP 2

Case 6 (A335078) Mr D I age 47 came to

membrane was present. A very small amount of discharge appeared to come from near the tube. The wall of the canal did not droop. The right mastoid region was extremely tender, especially over the emissary vein. The glands along the jugular vein

made

which complete night



This child was without history or signs of sepsis. Blood culture was not taken. There is little doubt but that this sinus condition would have spontaneously cleared up if the mastoid had been taken care of. The condition of the urine in such a case must be considered in searching for the cause for a rise in temperature.

CASE 15 (1359708) I S a girl, age 7 was brought to the Clinic May 31, 1931 because of dark run from her mouth.

Inasmuch as the postoperative course was without incident until the sixth day it is probable that the thrombus formed after operation. Because the temperature was not entirely typical of sepsis there was some doubt as to the sinus involvement. Conditions in young children do not necessarily run a clinical course true to type. The positive blood culture confirmed the suspicion of sinus involvement. Choked disc appeared in both eyes, but examination of the spinal fluid was negative. The leucocyte count proved a fair index of this patient's condition at the onset it was 18,000 but gradually decreased. The blood culture was negative seven days after the inguinal operation.

SUMMARY OF CASES IN GROUP 2

In Cases 9 and 10 a primary operation was performed on the vein because bleeding did not occur from the bulb end of the sinus. In three cases (Cases 11, 13 and 15) the operation on the vein was performed secondarily because symptoms and signs of sepsis came on during the first operation.

may have been present but not recognized at the time of the primary operation. In Cases 11 and 15 the condition may have resulted from injury to the sinus wall at the time of

patent (1 of 15)

5000 10 100

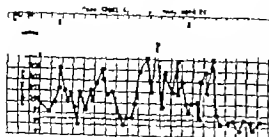


Fig. 13. Case 13. Postoperative course for 7 days after



Fig. 14. Case 4. Postoperative course. No particular

As a result of this the sinus region was tender to touch at the tip but not over the emissary vein there was no swelling. The leucocytes numbered 7,000. Culture of the blood was positive for pneumococci.

The evidence on which the sinus involvement was
ance of 1
the post
unusually rapid

CASE 13 (1906-4) Mr. R. B. age 24, c. was to the Clinic February 11, 1920 complaining of acute earache on the right side of 10 hours duration

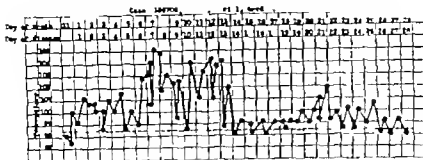
observed in the hospital for 3 days the tonsils remained large. Roentgenograms did not show evidence of mastoid cells on the right. The leucocyte count was 10,000.

occurred from the torcular node, but not from the bulb. The vein was ligated, because it seemed to be collapsed above the region of the facial nerve. The patient was dismissed 1 month later in excellent condition.

At the time of ligation there was some question of the identity of the vein but it seems perfectly evident that it must have been the jugular because there was no other vein near or in the carotid sheath.

CASE 14 (A191580) E. L. a girl, age 3, was brought to the Clinic March 25, 10 because of pain and swelling behind the right ear. After a

numbered 20,000 and there were pus cells in the urine. The diagnosis was right mastoiditis with



This child was without history or signs of sepsis. Blood culture was not taken. There is little doubt but that this sinus condition would have spontaneously cleared up if the mastoid had been taken care of. The condition of the urine in such a case must be considered in searching for the cause for a rise in temperature.

CASE 15 (4150704) I S a girl age 7 was brought to the Clinic May 3, 1921 because of discharge from the right ear with swelling over the mastoid region, headaches and fever. In the winter of 1920, 2 days after the onset of earache she had

Inasmuch as the postoperative course was without incident until the sixth day it is probable that the thrombus formed after operation. Because the temperature was not entirely typical of sepsis there was some doubt as to the sinus involvement. Conditions in young children do not necessarily run a clinical course true to type. The positive blood culture confirmed the suspicion of sinus involvement. Choked disc appeared in both eyes but examination of the spinal fluid was negative. The leucocyte count proved a fair index of this patient's condition at the onset it was 18,000 but gradually decreased. The blood culture was negative seven days after the jugular operation.

SUMMARY OF CASES IN GROUP 2

In Cases 9 and 10 a primary operation was performed on the vein because bleeding did not occur from the bulb end of the sinus. In three cases (Cases 11, 13, and 15) the operation on the vein was performed secondarily because symptoms and signs of sepsis came

Examination revealed frank mastoiditis on the right side. The leucocytes numbered 18,000, the haemoglobin was 50 per cent. The urine contained pus cells. The child was sent to the hospital immediately.

Jugular operation was performed. The usual

may have been present but not recognized at the time of the primary operation. In Cases 11 and 15, the condition may have resulted from injury to the sinus wall at the time of

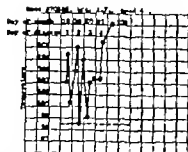


Fig. 16 Case 16. Temperature curve in a fulminating fatal case. No operation. Death on the fifth day.

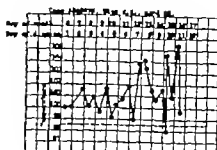


Fig. 17 Case 17. Temperature curve in a fulminating fatal case. No operation. Death on the fifth day.

primary operation in Case 11 from injury of the bulb with a probe, and in Case 15 from injury by needle puncture to determine the patency of the sinus. In Cases 12 and 14 in which the vein was not disturbed the patients had an uneventful convalescence. The leucocyte and differential blood counts were not particularly illuminating in any of the cases. The counts were not high, even in the presence of infection in the blood. The patient's general appearance seemed to be the best index of his condition.

In 6 cases the blood cultures were positive in 2 cases (Case 14) no culture was made. The patients were all infected with different organisms. The annoyance given the patient by daily blood counts and blood cultures is scarcely warranted in these cases. The temperature curve was quite characteristic in Cases 9, 10, 11 and 13 but in Case 15 it was definitely misleading. In Cases 12 and 14 the patients were nearly afebrile. Choking of the disc occurred in Case 15 and because of low haemoglobin in this patient, blood transfusion was given as a supportive measure. The beneficial effect was immediate. Grouping before transfusing is imperative. In Case 9, operation was performed under local anesthesia because of complication in the lungs. In general, it may be said that the patients in this group were not so extremely ill as those in Group 1. In no case was the vein resected. It is highly probable that the

GROUP 3

CASE 16 (A70350) Mrs. A. F. age 47 was examined March 18, 1919. She complained of sore throat of about 10 days duration. Erythema on the right had begun 6 days before with spontaneous discharge, chills and fever and marked prostration.

Examination revealed the membranes of the throat to be full and red, the lips covered with sores, the tongue dry and fissured, the soft palate and pharynx edematous and dry, the right mastoid tender, the right ear discharging thin serum, the

myotic streptococci in the blood.

It is highly improbable that surgical interference would have terminated successfully.

CASE 17 (A70347) Miss E. B. age 25, came to

had been treated elsewhere for typhoid in spite of disease in the ear and mastoid.

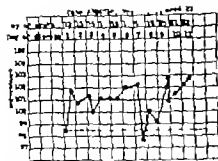


Fig. 8. Case 2. Temperature curve. Patient a relapsing case. Last stage of the disease. No operation.

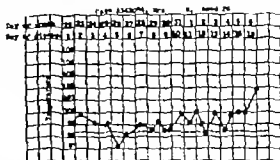


Fig. 9. Case 9. Nearly atypical course of a fatal unrecognized case thought to be a temporoparietal abscess. Death occurred on the sixteenth day. Necropsy revealed thrombosis of the straight and lateral sinuses.

was tenderness behind the ear. Paracentesis was performed without complete relief.

The patient appeared tired, pale, and sick. She was sent to the hospital. The mastoid was tender. The discharge from the ear copious. The leucocyte count was 14,000. Examination of the urine was negative.

March 10 a complete mastoidectomy was performed. The mastoid was the small-cell type. The mastoiditis hemorrhagic. Cultures were made. The bone was not broken down. The sinus and dura were not uncovered. A gauze sock was left in the ear. A wetted pack in the mastoid (Fig. 8).

The patient's rapid failure was appalling. The influenza epidemic was at its height and although the condition of the virus was recognized it was felt that further operation was not justified. However if such a case were again encountered it is probable that surgical interference would be instituted in order to make sure that everything possible had been done.

SUMMARY OF CASES IN GROUP 3

The 2 patients in this group were so seriously ill and the infection so overwhelming that operation was not attempted. The difficulty with the throat in Case 16 made it difficult to determine the true source of the sepsis even in the presence of the suppuration of the ear. The patient in Case 17 did not do well from the beginning of treatment, and became mentally disturbed. Soft parts discolored if handled. The site of the needle puncture for the procedure.

GROUP 4

CASE 18 (A32236) Mrs. G. F. age 23 was examined in the Clinic July 12, 1920 because of dyspnoea discharge from the ears, delirium, and

a relapse with high fever and pain in both ears. The ears were opened but she had since become progressively weaker and she had taken practically no food since the relapse.

General examination revealed evidence of pneumonia with effusion, strongly suggestive of tuberculosis. Both ears were suppurating. There was no mastoid tenderness or palpable cervical glands.

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CASE 19. (A343084) Mrs. B. age 26 came for examination December 7, 1920, because of severe headache and pain in the shoulder. She had had trouble with both ears since childhood. Four weeks before examination she had had a "head cold," followed by earache more marked on the right. Discharge from the ears had afforded little if any relief from the headache. She had not been confined to bed. One day she had felt chilly. She had been markedly drowsy for several days, then improved for a few days.

The eye grounds were negative, the blood showed secondary anemia, the leucocyte count was 7,800, the examination of the urine and roentgenograms of the chest were negative. The patient had

anemia, headache, and general malaise were probably owing to the intracranial circulatory changes resulting from the thrombosis of the straight sinus. This case and Case 18 illustrate the difficulty of recognizing a sinus involvement some weeks after the onset.

SUMMARY OF CASES IN GROUP 4

Case 18 represents a patient in the end stages, the result of septicopyemia, when operation had been delayed too long. Her ear was examined 3 days before her death. The history was typical. It is interesting

for streptococcus hemolyticus. Case 19 presented the most unusual clinical problem encountered. Thrombosis of the straight sinus probably accounted for the symptoms suggesting brain abscess. Death was due either to intracerebral hemorrhage at the site of the exploration (but this may occur with any exploration and prove fatal) or to circulatory disturbance due to thrombosis. Headache, drowsiness, and mental apathy may be caused by circulatory changes secondary to thrombosis of the straight sinus. In the presence of such symptoms, brain abscess and thrombosis of the straight sinus must be considered in the differential diagnosis.

GENERAL CARE

In general, patients with involvement of the sigmoid sinus must have careful, cheerful

well-lighted well-ventilated rooms. Such patients are immediately placed in the best possible quarters as a routine measure.

The nursing is an extremely important factor. It is customary to impress on the nurse that the recovery will depend largely on her efforts and hearty co-operation. Forced diet and large liquid intake should be encouraged as supportive measures even when the temperature is high. Unnecessary examinations, such as blood counts, blood cultures, and needless dressings, annoy the patient who

indicated encephalitis (18, 19).

The patient did not react well to the anesthetic, continuing very drowsy and stuporous. Her pulse was

The patient's home physician, after her

is using all available reserve to combat the infection. They may seriously handicap and prolong the convalescence and should be avoided

CONCLUSIONS

- 1 Patients should be treated individually rather than by one routine surgical procedure.
- 2 Primary operation on the jugular vein is not definitely indicated unless bleeding does not occur from the lower end of the sinus
- 3 The operation on the vein may be safely delayed, if both ends of the sinus bleed freely and the patient seems to be in fairly good condition. In none of the cases was the vein resected
- 4 Too much dependence must not be placed on laboratory findings. The general

appearance of the patient is a fairly reliable index of the condition
5 Blood transfusion by the citrate method

- 6 should not be done as it annoys the patients
 - 7 Forced feeding quiet pleasant surroundings, and cheerful nursing are important factors
 - 8 Patients with lung complications may recover
 - 9 Thromboses of the straight sinus may
- surgical interference are employed

RECURRENCES FOLLOWING OPERATIONS FOR INGUINAL HERNIA

By WILLIAM HESBERT M.D. F.A.C.S. CHICAGO

ALL surgeons admit a certain percentage of recurrences after operation for the cure of inguinal hernia, even when the wound has healed by primary intention. That infection is generally followed by a

cerned. This paper is confined to a study of the causes leading to recurrence in clean cases.

The average operator is prone to underrate the percentage of his recurrences. Patients with a recurrence are generally nursing a grievance and are not likely to return to the

standard, they would be of much more value than the divergent figures at present available.

Bloodgood, in 1919 studied the results of operation in Halsted's clinic in the early days when suppuration was frequent and found recurrences in 25 to 30 per cent of the cases. When the wound healed *per primam* the recurrences were alleged to be 6 per cent. This estimate was probably much too low. Taking it all in all, most surgeons of modern times admit from 5 to 10 per cent recurrences.

were direct hernia. Downes records 10 per cent for direct hernia. Coley's figures are low probably because so many children are included in the series. They are 0.6 per cent for the Bassini and 4 per cent for the Ferguson operation. Taylor's compilation of 816 cases of indirect hernia operated upon at Johns Hopkins Hospital represents what is probably a fair average, 5.6 per cent. Of Davis' collection of 1500 patients operated upon at the Massachusetts General Hospital, 13 per cent recurred. Judd speaking of both

value. All Bloodgood's opinion, statistics can be deemed absolutely reliable only when based on an actual re-examination of the patient by the original operator himself. It requires experience to detect an early recurrence which might easily be passed unob-

varieties of hernia, states that 70 per cent of all recurrences come within the first 6 months, and 90 per cent within the first year. That a supposedly simple operation like a herniotomy should, at the hands of the most expert technicians in the foremost hospitals be followed by such a high rate of failure is significant. What is wrong? I should say that fundamentally it is the failure of the operator to individualise in each and every case. It is his failure, not through ignorance but rather inattention, to observe carefully the structures laid bare in his dissection to note the variations in the anatomical development, and to employ that plastic which is the proper one for the case at hand.

Moschcowitz tersely tabulated the causes

3. Improper operation improperly done.

The different factors, anatomical and technical which are involved in a recurrence, can, for the purpose of study be enumerated as follows:

- 1 The type of hernia—
Direct and indirect,
- 2 Variations in the normal anatomy of the inguinal region—
The conjoined tendon and aponeuroses
- 3 The type of operation—
Involving mainly the question of transplantation of the cord and umbilication
- 4 Sliding hernia

1. THE TYPE OF HERNIA

The ratio of direct to indirect hernia is about 1 to 20. Recurrences in direct hernia are not only more frequent, but occur earlier than in the oblique. Coley states that 80 to 90 per cent of the recurrences in direct hernia occurred in the first year—the majority in the first 6 months. If a patient remains free from recurrence of direct hernia for the first 6 months the probability is he will remain cured. In direct hernia Coley had 15 per cent recurrence. Taylor reports 47 known results in direct hernia with 18 per cent failure.

Bloodgood in 1918 wrote as follows about direct hernia. There is, however, a small

group of hernia which can be easily recognized
the first group—

this type occurred in eleven instances, about 4.5 per cent. Among these 11 cases there were 6 recurrences in from 6 weeks to 6 months after operation. In the larger group there were 1 per cent recurrences.

What is there about a direct hernia that makes it more difficult to cure than the indirect?

In the first place the anatomical defects in the shape of deficient conjoined tendon are not considered by the operator in choosing the proper operation. Again the sac did not

Habited with an Andrews Imbrication, is the best technique for these cases. If additional firmness is desired a flap of fascia from the rectus sheath will answer the purpose better than to transplant the rectus muscle.

3. VARIATIONS IN THE NORMAL ANATOMY OF THE INGUINAL REGION

The conjoined tendon. In a paper which I read before this Society in January 1913 entitled "Some Observations on the Anatomy of the Inguinal Region, with Special Reference to Absence of the Conjoined Tendon," I described my clinical findings. I called attention to the frequency with which the conjoined tendon was found attenuated or entirely absent, and described the condition fully. It was my opinion then, as it is now that this anatomical defect had much to do with the original development of direct hernia, as well as with recurrence, especially if the improper operation had been performed. Prior to my publication, Bloodgood had been the only one to pay any particular attention to the conjoined tendon. I was at that time ignorant of his work and my observations had been made independently. My paper passed quite unnoticed but it will appear evident from quotations from Bloodgood

which will follow presently that he appreciates more than ever the importance of this matter. The profession, as a whole judging by the literature, is still indifferent.

In my paper I asserted that the deficiency of the conjoined tendon could be detected clinically by the examining finger before operation, and since that time I have repeatedly demonstrated at operation that the palpating finger is correct in diagnosing absence of the conjoined tendon.

Associated with absence of the conjoined tendon it has been my experience to find developmental defects of the external oblique fascia. This fascia over the inguinal canal will be found to be thin and atrophic, with its fibers separated and even displaying the muscle underneath. In these cases the external ring is abnormally large, admitting the tip of one or two fingers easily. This condition of atrophic fascia and large external ring is not the result of a hernial protrusion, for it is demonstrable in cases where no hernia exists. Such a condition can be called a "predisposition," and when it accompanies a real hernia on the other side, it should be operated upon.

Bloodgood says: "In these cases in which this examination detects the complete absence of the conjoined tendon, the ordinary operation for inguinal hernia, according to my investigations up to 1899 failed to cure in about 50 per cent of the cases. The majority of operators today admit about 5 per cent recurrences in all cases of hernia. I am of the opinion that the majority of these recurrences are not due so much to the fault of the ordinary operation as to the type of hernia and the absence of the conjoined tendon. Bloodgood has read most of the contributions of the surgeons who operated in our various training camps during the war and has failed to find a single mention of the conjoined tendon."

Bloodgood employs the term "obliteration" in discussing the various degrees of maldevelopment of the tendon. This term would imply the previous existence of the structure and that it had been caused to shrink or disappear entirely by some outside agency like the pressure of a hernial sac.

That Bloodgood himself felt some uncertainty regarding this term is shown by what he wrote in 1898: "The term obliterated is used because the extreme condition is more likely to be an acquired one rather than congenital." I believe in the congenital theory because the extreme condition or complete absence of the tendon is often found where there is no hernia present at all, and even if a hernia is present it is not the cause of the atrophic condition of the tendon, but a result of the same.

However the important point to be recognized at the operation is that the conjoined tendon is either absent, very narrow, or very attenuated, and that the lower angle of the inguinal canal (Hesselbach's triangle) has lost its strongest support and that something must be substituted for this defect at the operation for hernia. Bloodgood recommended transplanting the rectus muscle down to Poupart's ligament, but Halsted never advocated the employment of this feature, maintaining that the rectus muscle in functioning would tend to draw back into its natural position. This was borne out by the experience at Johns Hopkins for in 34 cases in which it was tried there were 35.3 per cent recurrences.

Taylor found that among his cases where the conjoined tendon was absent recurrences took place in 37.5 per cent.

I want to emphasize that in cases where the conjoined tendon is absent a Bassini operation cannot be performed for it is physically impossible to bring the innermost fibers of the internal oblique and transversalis muscles down to the spine of the pubes. I believe it is owing to the persistence of operators in employing the Bassini method in direct or indirect hernia with absent conjoined tendon that many recurrences are traceable. The technique which fulfills the indications is the imbrication method after Andrews for the oblique variety and with the Halsted cord transplantation for the direct hernia.

3 THE TYPE OF OPERATION

In the various operations in which the cord is not transplanted whether the aponeurosis is overlapped or not, the possibility of a

recurrence always exists at the point of emergence of the cord at the median angle of the plastic. It is self-evident that any opera-

connection Coley's statistics are suggestive, for while he had 0.6 per cent recurrence following the Bassini method there were 4 per cent following the Ferguson, in which the cord is not transplanted.

Coley believes that it is a great disadvantage to bring the cord out superficial to the aponeurosis and covered only by skin. The disadvantages of the Halsted operation have been the recurrences at the site where the cord came through the aponeurosis. Coley believes that the cord should be covered by fascia as in the Andrews method. It is true that in indirect hernia the Halsted operation is not the best choice, for it leaves a weakness in the aponeurosis at the internal ring, which is just the point where this hernia is most likely to recur. In direct hernia however the Halsted operation with imbrication is best for the cord is kept away from the point of greatest weakness, the inner angle

4. SLIDING HERNIA

Javid had 14 cases of sliding hernia with 3 recurrences. I believe that were the facts known it would be found that most sliding hernia recur. This is to be expected when you consider what a sliding hernia is and that at operation one of the fundamental conditions for cure cannot be complied with, namely excision of the sac. With this handicap, these cases present a difficult problem indeed. Various plastics on the bowel have been devised to do away with the sac, but without much ultimate success. These patients are usually fat with atrophic muscles

Recurrences have their beginning as a general rule at two points: (1) At the internal ring and (2) at the external ring.

7. AT THE INTERNAL RING

Among the causes for recurrence at the internal ring are (a) faulty ligation of sac, (b) faulty suturing about the internal ring,

feature of every hernia operation is the high ligation of the sac. This has been well brought out by the fairly good results obtained by the simple operation of Kocher. One of the points emphasized by Halsted in his early work was the high ligation of the sac. There seems to remain little of the original operation of Halsted and Bassini that is really essential except the clear and free exposure of the entire inguinal canal, which makes possible the high ligation of the sac. In children, high ligation alone will cure the

of peritoneum, yet many operators are at times careless in this matter. A preformed sac, even though it be small, will be the starting of a hernia. To eliminate any possibility of dimpling at the point of ligation some operators draw the stump away from the internal ring and anchor it to the muscles.

How important a preformed sac is in the production of indirect hernia was first brought out in a paper which I read before this society in 1910 on "The Frequency of Congenital Sacs in Oblique Inguinal Hernia." I expressed the opinion at that time that

own in
papers
lates

repair. Ligation is so common and so consenting. If one is accustomed to operate under local anesthesia that question can be settled on the spot. The cord removed it is then a matter of layer sutures taking care that no weak areas are left.

one pulls it out for high ligation there is some risk of injury to the bladder. There is no

of a small unopened sac is to insert a circular purse-string suture and invert.

When the sac is of larger size it had best be opened and excised. Keeping in mind always the bladder which may be on the inner side of the sac. In the case of a double or pantaloon sac it has been suggested that one pull the direct sac to the outer side of the deep epigastric vessels and tie off the two sacs as one. While this maneuver has no advantage over separate ligation it may be followed by injury to the vessels and troublesome bleeding.

b. Faulty suturing about the internal ring. The so-called internal ring is not so much a ring anatomically as it is a weak spot. The cause of the weakness is the migration of the testis. In all hernia operations this region should receive especial care in suturing. I believe Coley was the first to advise one or two sutures of the tissues above the cord. Thus in the Andrews imbrication the structures are sutured from the spine of the pubes to the internal ring. Thereupon a suture is placed above the cord leaving an opening just large enough to avoid constriction. This suture includes the edge of the external oblique fascia and internal oblique muscle which are sutured to Poupart's ligament. I consider this suture second in importance only to the one at the pubic spine.

c. Halsted transplantation of the cord with out excision of varicose veins or lipomata. The view is held by many that the straight course of egress of the cord at the internal ring creates a weak point. This is true to a certain extent especially if the sac has been tied too low and no reinforcing suture has been put above the cord. For this reason this plan of disposing of the cord is advisable in direct herniae only. In the indirect herniae the Andrews imbrication is much to be preferred.

Now as to the vein. If the veins could be excised in every case of inguinal hernia and the remainder of the cord transplanted with

out any danger of orchitis and atrophy of the testicle a perfect result would probably be accomplished in every case. In case the veins are at all in excess of the normal, they should be excised. Due caution and proper judgment should be exercised lest too many vessels are removed and atrophy of the testicle result.

The fatty tissue which accompanies the cord and is often excessive in amount should always be dissected out and removed that the size of the cord may be lessened. Failure to observe this simple measure may cause trouble.

2. AT THE EXTERNAL RING

Recurrences may point at the external ring and for reasons as follows:

a. Direct hernia in which the wrong operation was done, such as a Bassini or Ferguson in case of absence of the conjoint tendon. After any operation in which the cord is not transplanted recurrences may take place at the inner angle.

b. Indirect herniae during the process of recurrence may traverse the inguinal canal and appear at the external ring. This would apply to the Bassini or Andrews rather than to the Halsted operation.

TECHNIQUE

The various operations for inguinal hernia as they are being performed today are all more or less based upon the primary Bassini or Halsted technique. In this country the MacEwan and Kocher operations are no longer in vogue.

Whether the cord is transplanted as in the original Bassini, original Halsted posterior Andrews Torek, Hackenbruch or Poiruel operations or whether the cord is left in place without overlapping of the external oblique fascia as in the Bull-Coley, Ferguson or Woelffler or with imbrication of the aponeurosis as in the anterior Andrews Girard or improved Halsted (the so-called Hopkins operation) the essential underlying principle is the removal of the sac and the closure of the hernial opening by suturing the internal oblique muscle and conjoint tendon to Poupart's ligament.

No one operation will fit all cases, but by observing the general fundamental principles, it will be found that the technique need not vary greatly to be generally useful. I have found the Andrews Imbrication operation to be the one which best fulfils all possible indications. The only variation in the technique

rect hernia the cord lies between the two layers of imbricated external oblique fascia

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allowed to emerge directly through the aponeurosis as in the Halsted operation. In indol

ACUTE INTESTINAL OBSTRUCTION IN INFANCY AND CHILDHOOD

A BRIEF REVIEW OF 55 CASES

By EDWARD W. PETERSON, M.D., F.A.C.S., New York
From the Surgical Service of the New York Post-Graduate Hospital

ACUTE intestinal obstruction is fraught with such real danger to the patient

derangement of kidney function, high non-protein blood nitrogen, delay in coagulation ———— of renal death

gical diseases, for the most part tend toward spontaneous recovery if proper palliative measures are instituted. Conservatism does not carry with it the same risk, and delay is not so apt to spell disaster.

During the last decade experimental research has thrown much light on the physiological, chemical, and pathological problems of acute intestinal obstruction. Leaving out of consideration any purely theoretical or conflicting views, Stone¹ sets forth the following points as being generally accepted:

1. There is found in the lumen of obstructed bowel a toxin which, when injected

symptoms present in acute intestinal obstruction viz fall in blood pressure, temperature disturbances, vomiting, diarrhea,

Stone, Harvey B. The toxic agents developed in the course of acute intestinal obstruction, and their action. Surg. Gynec. & Obst. 1911, 11: 413.

This paper is based on a study of 55 cases of intestinal obstruction occurring in 53 young subjects. One infant, in a period of 4 months was operated upon twice for acute intussusception and once for postoperative adhesion obstruction. Cases of imperforate anus, congenital intestinal atresia or stenosis, and strangulated external hernia have not been included in this series. A few general facts will be noted. The obstruction developed in infants in 43 instances (78 per cent) and in children (ranging in age from 20 months to 11 years) 12 times. Males were affected twice as often as females, there being 36 of the former and 19 of the latter. With regard to the cause of the obstruction the cases may be divided into the following groups:

1. Early postoperative band or adhesion obstruction (within 3 weeks of operation): 2 cases. Both cases developed in children shortly after operations for appendicitis.

2. Late postoperative band or adhesion obstruction (developing after 4 weeks): one

case occurring in an infant, who had recovered from an operation for double intussusception 5 weeks before.

3. Band or adhesion obstruction (without previous operation) 2 cases. The first case was in an infant and the obstruction was caused by a congenital band, from the cecum to the jejunum, producing angulation and acute obstruction. The second case was in a girl 8 years old with appendicitis as the cause of the obstruction.

4. Tumor obstruction one case in a 5 weeks old female infant with a benign tumor (probably an adenocystoma) at the ileocecal valve.

5. Mesenteric thrombosis one case, in an infant, with eighteen inches of gangrenous obstructed jejunum.

6. Pressure obstruction one case in a child with an intra-abdominal abscess left side.

7. Foreign body obturation obstruction one case in a girl of 11 years who had eaten heartily of plums and had swallowed the stones.

8. Intussusception, 46 cases

It will be seen that, aside from intussusception, acquired types of intestinal obstruction are relatively rare. In this series intussusception was the variety of obstruction encountered in 83.63 per cent of our cases. While it may occur at any age it is essentially and pre-eminently an affection of infancy and early life. A detailed description of the disease will not be given as this has been done in previous papers on the subject. Certain previously uttered statements will be repeated here, in order to emphasize the following points:

1. The cardinal symptoms—pain, shock, vomiting, mucob hemorrhagic stools and the presence of an abdominal tumor—occur so regularly and in such a clear cut and characteristic way as to make intussusception the easiest of abdominal diseases to diagnose. It is evident that the rapidity and severity of these symptoms and the course of the disease are in definite relationship to the degree of circulatory obstruction and to the poisoning which results therefrom. The morbid anatomical sequence in the acute variety is as fol-

lows: invagination, circulatory stasis with exudation and oedema, infection, inflammation and gangrene of the intussusceptum (Senn).

2. Differential diagnosis seldom presents any difficulties. Ileocolitis (acute dysentery) uncomplicated abdominal purpura and spastic colitis are diseases which must be borne in mind and ruled out. If there is any doubt in a given case it can, as a rule, be settled by a fluoroscopic or X-ray examination.

3. Experience has shown that 10 per cent is a liberal estimate to be placed on the cases that can be disinvaginated by gas insufflation or hydrostatic pressure. The uncertainty, the danger and the relative futility of aerohydrostatic measures are not sufficiently understood or appreciated. Early operation is the safest, the simplest and the only certain plan of treatment, and gives almost uniformly good results in all types of cases, regardless of the age of the patient.

Of the 46 cases of intussusception here considered 39 were under my care and 7 were under the care of my associate, Dr W. M. Silleck.

Age. Thirty-nine cases were in infant ranging in age from 6 days to 13 months and the 7 older patients were from 20 months to 8 years of age.

Sex. There were 31 males and 14 females.

Clinical picture. The physical condition of 36 of the infants was exceptionally good. 5 were in but fair shape and only 1 of the series was decidedly subnormal. The majority were breast fed, well nourished, and previously healthy babies. Only 5 of the infants were on artificial feedings exclusively. The condition of the 7 older patients was fully up to the average.

The onset of the attack was more or less typical in all of the cases. Pain was uniformly present. Some degree of shock was noted in most instances. A few cases showed actual collapse during the initial seizure of pain, but there was always more or less reaction later. Vomiting or regurgitation of stomach contents occurred in every case. Vomiting is rarely a prominent symptom until late in the disease. When it appears early and is persistent we have come to look upon it as highly

significant of circulatory strangulation, with the prospect of a rapidly developing gangrene of the Intussusceptum. Mucohæmorrhagic stools were present in 44 cases (about 95 per cent) absent in but two. A distinct tumor or tumefaction was felt in every case with but two exceptions.

Varieties. Following the simple classification, suggested by Chubb, our cases can be divided into the following groups: enteric, 3 cases; ileocecal, 31 cases; enterocolic or double Intussusception (entero-ileocecal and ileocolic-colic) 8 cases; colic, 2 cases. In two instances where no operation was performed the type of invagination was not determined.

Etiology. In two cases, in boys aged $4\frac{1}{2}$ and 7 years, respectively, a Meckel's diverticulum was the causative factor in the production of the Intussusception. In another case in a $6\frac{1}{2}$ months old male infant a congenital tumor of the cecum (cystadenoma) was the cause. In another infant, the last 2 inches of ileum *not involved in an ileocecal intussusception* appeared macroscopically to be the seat of a papillary angiomatous growth. The

several instances. It has always been our

been taken up as a routine measure. It has been found that a certain number of them show definite, acute inflammation, even where no trauma to this organ was present. It is hoped that others will make investigations along this line for we are convinced that appendicitis is one of the causes of Intussusception. Enlarged mesenteric glands were found in a considerable proportion of our cases, but

ceptions

Recurrence. There were but two cases in our series in which recurrence took place. In

the first case there was a return of symptoms in an infant upon whom Dr Silleck had operated 2 days before for ileocecal Intussusception and on reopening the abdomen, he reports the finding of a recurrence at the same site with gangrene of the neck of the Intussusceptum, necessitating a resection. The second case was operated on by me for an entero-ileocecal Intussusception. Reduction was difficult and convalescence stormy. Five weeks later I operated a second time for acute obstruction of the lower ileum caused by adhesions. Two months later symptoms of Intussusception developed, and at the operation, performed this time by Dr Silleck, an ileocecal invagination was successfully reduced.

Results. One infant who had been ill for 7 days with Intussusception was moribund when brought to the hospital and died within an hour of admission. Another late case ill for 3 days, died on the operating table just as the operation was started. A gangrenous, irreducible, double Intussusception was removed postmortem. There was but one successful reduction without resort to laparotomy. The patient, a girl of 5 years of age, was seen in consultation with Dr A. H. Cilley and presented the usual history and symptoms of Intussusception. Following hydro-tatic pressure and postural treatment, relief was obtained. Of the remaining 43 cases, 28 were reducible and 15 were either gangrenous or irreducible or both. In the first group there were 3 deaths, due to an overwhelming toxæmia, 9 hours, 7 hours, and 5 hours after reduction.

Intussusception while ill with influenza, during the 1918 epidemic. Reduction was accomplished with ease about 6 hours after the onset but death followed 4 days later and was due to a double influenza pneumonia.

from the hospital. In this instance the cause of death was not determined. To sum up the

results in the reduction cases. There were 22 cures and 6 deaths, mortality 21.42+ per cent. If allowed to exclude the deaths not directly due to the intestinal obstruction or to the surgical treatment thereof, the mortality would drop to 10.71+ per cent. There were several recoveries in late and profoundly toxic cases. The longest interval between the onset of the disease and a successful reduction was 4 days; the shortest was 5 hours. Every case in this group seen within 48 hours of the onset recovered, with the single exception of the boy who died of influenza pneumonia.

In the second group of 15 cases requiring resection there were 4 recoveries and 11 deaths, mortality 72.4 per cent. Of the thousands of cases of intussusception which have been reported throughout the world, there are on record less than a score of successful resections in infants. In older children the statistics are not quite so appalling. I had the honor in 1905 of presenting before the Surgical Section of the Academy of Medicine the first successful resection of a gangrenous intussusception in an infant on record. Since that time I have had two other successful resections, one in an infant 8 months old and the third in a boy 4½ years old. The fourth successful operation in this series was performed by Dr. Silleck. Of the 11 fatal cases, 9 were in infants.

When this series of intussusception cases is studied as a whole one is impressed with the large proportion of late cases. More than two-thirds were received into the hospital after the first 24 hour, and about one third of the total number required resection. In spite of the fact that diagnosis is easy, no class of cases is more often unrecognized and mismanaged.

There were 22 deaths in this series of 55 cases of acute intestinal obstruction in children, giving a mortality of 40 per cent. This includes the fatalities from all causes, early

and late, regardless of whether the patient received treatment or not. The most important factor in this intestinal obstruction problem is to operate early, before involved tissues have undergone serious damage and before toxæmia has become pronounced. It is the

have the operation done early than well. Better a poor operation on a patient in good condition than a good operation on a patient in poor condition. Van Beuren makes the axiomatic statement that the longer a patient lives with acute intestinal obstruction before operation, the sooner will he die after operation. So much for this phase of the question. Experience has taught us that occasionally an apparently hopeless risk can be converted into a fair sort of a gamble by treatment which combats shock, tissue desiccation and toxæmia. External heat, appropriate stimulation, stomach lavage, the introduction of fluids into the system by infusion or hypodermoclysis or proctoclysis, are just as much indica-

mentioned morphine, atropin and pituitrin if used judiciously are agents of proven worth. If threatened gangrene or perforation of the bowel does not force the operator to take radical steps—then a two-stage operation will often prove successful where a single procedure might have resulted in failure. The importance of emptying the loaded segment of bowel above the obstruction is obvious. Caecostomy in acute obstruction of the bowel is

accompany the operation for the relief of the obstruction—are often life-saving measures. A local anæsthetic should be the anæsthetic of choice in many of these operations.

PERIOSTEAL SARCOMA IN ASSOCIATION WITH OSTEOMYELITIS

REPORT OF THREE CASES¹

By R. L. RIFODIN, A.B. M.D. F.A.C.S. AUGUSTA, GEORGIA

From the Department of Surgery of the University of Georgia

WHEN after receipt and study of material from the first case of periosteal sarcoma associated with osteomyelitis Dr. Bloodgood wrote that he had "never observed sarcoma in osteomyelitis" it occurred to me that it would be of sufficient interest to present. A case in

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Operation, July 20, 1920, Dr. J. H. Kist, resident surgeon. Removal of entire anterior half of the

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Four months later there was a questionable in-

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From the Department of Surgery of the University of Georgia

WHEN after receipt and study of material from the first case of periosteal sarcoma associated with osteomyelitis Dr Bloodgood wrote that he had "never observed sarcoma in osteomyelitis" it occurred to me that it would be of sufficient interest to report. A second case a few months later emphasized this, and finally a third case since the title of the paper was sent to our secretary. I wish simply to record the clinical observation of the cases

down to the bone, the upper end of which was also curetted. Following this the temperature rose to 102 daily and the pulse was still rapid. She began

was strongly suggested. X-ray of the lungs was negative. A section was taken from the depth of the wound but showed only infected granulation tissue. This was repeated with the same findings. The general condition of the patient was poor, she

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Illness. Her temperature did not exceed 99.5, pulse rate 125 to 150. The urine showed albumin, a few

hemorrhage, some necrosis, wide-spread infection

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UTERUS SEPTUS DUPLEX WITH FULL-TERM TWIN PREGNANCY

By CHARLES J. KICKHAM, M.D., F.A.C.S., Boston
 Senior Visiting Obstetrician, St. Elizabeth's Hospital

ANOMALIES in uterine formation, with subsequent pregnancy are usually interesting to report and that the "double" type of uterus has some clinical significance goes without saying. The case reported below is unique, as a search of the literature for some years back does not reveal one of uterus septus duplex where pregnancy took place in each half and went to term with living babies.

The various textbooks on obstetrics and gynecology contain a few pages on this subject and its etiology and anatomic types. Before going further allow me to review in brief a few of these points. Embryologically the vagina and uterus are formed by the fusion of the two müllerian ducts and this fusion takes place from below upward. In anatomical studies of actual cases, it has been found that failure of this normal fusion has resulted in several varieties of abnormality some little and some very greatly divergent from the normal condition. For instance we get the case of double vagina, with normal uterus the double vagina and cervix but single uterine cavity the normal vagina and cervix but uterine cavity divided by a central septum the uterus, two distinct portions only joined low down at cervix (uterus diadelphus) the well developed uterus with a rudimentary horn and so forth, through other anatomical malformations.

In many of these cases no other abnormality is present and the local condition is only discovered by accident, since the patient is not cognizant of an unusual condition. Some degree of lack of fusion of the müllerian ducts is not uncommon as shown by the number of cases reported in journals as well as from my personal observation, and I wonder if it cannot account for some of the unusual obstetrical and gynecological conditions we meet from time to time. One book mentions that this may be the factor in a case of regular menstrual flow accompanied

by known pregnancy the menstrual blood coming from the unimpregnated portion of the uterus it may account for excessive menstruation at regular periods. Some of the aborted pregnancies in the early months may be due to the impregnation in a rudimentary portion of such a uterus and it may account for some of the other abnormalities. Impregnation with normal delivery has taken place with cases of such congenital abnormalities and the double vagina or double uterus only discovered later during some operation or on pathological examination of the uterus. Cases have been reported where a full term pregnancy has taken place in one half and an undeveloped embryo or foetus found in the other portion. One case is on record where a twin pregnancy had taken place in one horn of a bicornuate uterus and had calcified and remained for 20 years before discovery. It has been said that twin pregnancy may in some cases be due to this anomaly each portion of the uterus being impregnated separately or by superfetation but not in the same uterine cavity. My case seems to give proof of this. Before giving case history let me say that I regret exceedingly owing to a preventable error it was not determined in this case whether the vagina was single or double.

Mrs. Z. I.—para. age 30 birthplace Rumania. Past and family history as far as obtained showed nothing important. The entire history in this case was unsatisfactory as neither patient nor any member of her family that heard her could speak English and the little obtained came through interpretation.

Personal history. Last catamensia not known but husband said she was due at this time. Patient was under midwife's care until 3 hours before entrance, when seen by Dr. Paul Jakmauh who referred her at once to the hospital. General oedema seemed to have started about 3 weeks ago and patient became seriously ill with symptoms of impending convulsions a few hours before Dr. Jakmauh was called.

Physical examination shows large woman, with general oedema over entire body weighing at least

extension none

SUMMARY

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1. The author reports three cases of large round-cell sarcoma, periosteal origin associated with infection and necrosis of bone

2. All females two white one negro

3. Ages, 14 12 and 20 years respectively

4. Left tibia in each case

5. No history of trauma or serious illness

6

7

8.

two, none in the other

9. Treatment, mid thigh amputations

10. Results one dead and two living free from signs of recurrence, local or elsewhere, to date

CASE 1 developed in the hospital under our observation and we feel reasonably sure therefore that the osteomyelitis preceded the sarcoma

CASE 2 we questioned which preceded although we did not suspect the infection and necrosis or abscess prior to operation but found it upon dissection of the specimen. Might the history however of attacks of pain—growing pains for several months preceding the development of the tumor—

saw her. The specimen was interesting in that there was a rather sharp line of demarcation at the site of the pathological fracture of the tibia—extensive osteomyelitis of the shaft above, whereas below there was wide-spread invasion by the sarcoma of bone and soft part extending downward even to the internal malleolus.

NOTE.—Cases 1 and 2 are living and apparently in excellent health, free from any evidence of recurrence at the time

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Physical examination shows large woman, with general edema over entire body weighing at least

uly 2000 10:00 AM

SUMMARY

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- 2 All females two white, one negro
- 3 Ages 14, 12 and 20 years respectively
- 4 Left tibia in each case
- 5 No history of trauma or serious illness.
- 6 Local pain in two none in the other
- 7 Staphylococcus aureus infection in each
8. Rapid pulse and rather high fever in two none in the other
9. Treatment, mid-thigh amputations
- 10 Results, one dead, and two living free from signs of recurrence local or elsewhere to date

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CASE 3 gave an indefinite history and showed a well advanced growth when we first saw her. The specimen was interesting in that there was a rather sharp line of demarcation at the site of the pathological fracture of the tibia—extensive osteomyelitis of the shaft above, whereas below there was a

NOTE.—As noted at Case 2 and 3 are living and apparently in excellent health, free from any evidence of recurrence, at this time.

CHOLECYSTENTEROSTOMY FROM AN EXPERIMENTAL STANDPOINT¹

By GATEWOOD M.D. CHICAGO
Instructor in Surgery, Rush Medical College

AND
PETER H. POPPENS, M.D. PRINCETON, ILLINOIS
From the Surgical Department, Rush Medical College, Chicago, Illinois

THE possibility of making an anastomosis between the gall bladder and some part of the gastro-intestinal tract was suggested almost as early as the operation of cholecystotomy. Nussbaum (1) is generally credited with first suggesting such an anastomosis. He did not suggest the present operation but stated that in cases where the flow of bile into the intestine was no longer possible the question of an artificial stoma made by some adhesion between the liver and the bowel was one to be considered. In 1880 or 1881 von Winckler (2) performed the first operation of this type. He sewed the gall bladder and the ascending colon together and fastened them in the abdominal wound. Two attempts to establish connection by means of a trocar failed. Later a loop of small bowel was fastened to the gall bladder and a tube inserted. Four operations were required to close the fistula which followed so that the patient had undergone at least half a dozen operations before the necessary anastomosis was completed.

In 1884, Gaston (3) of Georgia, experimenting upon dogs, fastened the surfaces of the gall bladder and duodenum together by means of a single elastic suture and relied on the formation of a fistula as the suture gradually passed into the bowel. In some of his dogs he found the fistulous opening persisted 3½ months after the operation in spite of the fact that the common duct was not ligated.

Harley (4) established a communication by applying a corrosive paste to the surfaces of the two viscera and rapidly uniting them by means of suture.

Goldt (5) opened both the gall bladder and the bowel and united them by two rows of sutures. This method is practical and safe and has served as a basis for subsequent operations.

In 1892 Murphy (6) advocated the use of his button instead of the sutures. This method was generally adopted for a time but has now been practically abandoned although it can be used to advantage in well-selected cases.

Cholecystenterostomy in one stage was first done in man by Monastyrsky (7) in May 1887 and about a month later by Kappeler (8). Both dealt with cases of carcinoma of the head of the pancreas. In each instance the gall bladder was united to the small intestine by means of two rows of sutures.

Mayo-Robson (9) in 1889 united the gall bladder to the colon with apparently good results. In 1902 Radsjewsky (10) was able to collect 56 cases of anastomosis of the gall bladder to some portion of the gastro-intestinal tract. Mayo-Robson (11) in 1909 reported 63 cases of cholecystenterostomy. In 49 of these there was benign occlusion of the common duct (chiefly interstitial pancreatitis) and in 13 the obstruction was due to malignancy. Of the former 47 made a complete recovery while of the latter only 7 survived the operation. In 1913 Kehr (12) reported that he had performed more than 60 cholecystogastrostomies with excellent results.

Although the establishment of a fistula between the gall bladder and some portion of the gastro-intestinal tract has become a recognized operation with fairly definite indications, there is still considerable difference of opinion as to what part of the canal should be used. Most men of experience prefer the duodenum as this more nearly restores normal physiological relations. Such an anastomosis, however, is not possible in many cases on account of adhesions or perhaps, the presence of a tumor. Where it is necessary to take some other portion of the gastro-intestinal tract the stomach, jejunum,

had to deal with a large fibroid and after suturing the uterine wound in layers in the usual way I proceeded to remove a supposed fibroid. On cut

no point of division was noticeable. The accu-

uterine cavity was sutured in layers without dis-
turbance septum. Patient had been given ergotin

large uterus consistent with full term, made out
no uterine contractions. fluid wave with question
in abdominal cavity. Vagina very edematous but
no vaginal examination made. No fetal parts or
heart made out.

recovery

benzyl is used in

Nebo

Operation. Through a median low incision the
peritoneal cavity was opened with evacuation of

third day there was a small discharge from
lower end of incision with evacuation of sero-
purulent material. This cleared up on fourth day

obtained

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ileum or colon may be used. Spontaneous fistulae between the gall bladder and the colon have been found at autopsy and at operation in cases of cholelithiasis. Some of these cases have apparently done well for a considerable time. Mayo-Robson performed his first cholecystocolostomy upon a woman with a tumor in the gall-bladder region. The duodenum was inaccessible on account of adhesions and the gall bladder was, therefore, the colon
few weeks
y and was

living 4 years later. In summarizing his experience, he stated that although the anastomosis with the colon had acted very well, he no longer thought it the safest operation because of the possibility of suppurative cholangitis. This seems to be the general opinion of the men who have had the largest experience with this type of operation.

Cholecystogastrostomy first reported by Wickhoff and Angelberger (33) then for a time advocated only by the French (Perrin, Jaboulay, Terrier and Lefere) seems to be gaining in favor at the present time. Hamaheer in urging it, claims that there is less danger of infection and more accessibility. He states that most of his patients never vomited and soon had a good appetite. He believes that the danger of an ascending infection is present in any anastomosis, but that the stomach is least likely to give trouble. In more than 60 cases in the 10 years prior to 1913 he noted liver infection in but one instance.

Many surgeons have hesitated to anastomose the gall bladder to the stomach because they have feared that the bile might disturb the chemistry of digestion. The older physiologists (Claude Bernard, Schiff and Hammerstein) showed that bile *in vivo* delayed digestion. This was believed to be due to a precipitation of pepsin and peptones. These men taught that bile in the stomach had a harmful influence upon the organism. That quite different conditions prevail in natural digestion was early shown by A. Dastre (13) and Oddi (14). Dastre in 1880-1883 gave bile to dogs at intermittent periods, either by mouth or by gastric fistula,

and showed that the animals did well under these conditions. He also showed that, when the bile was introduced into the stomach during digestion, the gastric contents remained acid and contained pepsin and peptones. Oddi, in 1887 both by feeding experiments and by anastomoses showed that in dogs, bile entering the stomach did not disturb the digestive process nor interfere with the general health of the animal. Paterson (15) states that in gastroduodenostomy the total gastric acidity is reduced 30 per cent, due partly he believes, to the entrance of bile and pancreatic juice and partly to the diminution of the total chlorides secreted by the gastric mucosa. Employing dogs, Wiedemann (16) made fistulae of the stomach and of the bowel at the junction of the jejunum and ileum. Control tests were made for 4 weeks after which cholecystogastrostomy was performed. He found that on a milk diet, the addition of bile did not reduce the acidity of the stomach contents. There was some decrease in the splitting of albumin due perhaps to the absence of the usual regurgitation of pancreatic juice with the bile. The amount of undigested food in the intestinal contents was found to be less. Mease (17) kept dogs with cholecystogastrostomies alive for 9 months or more and reported that they remained perfectly healthy. Cannac (18) has confirmed these observations.

A number of men (Monprofit, Kausch, and Speed) owing to the accessibility of the jejunum have advocated its use for anastomosis. Pendl (24) first performed a cholecystenterostomy through a slit in the mesocolon (cholecystenterostomy retrocolica). Krause (25) then combined a cholecystenterostomy with an entero-anastomosis. Krukenberg (26) turned the fundus of the gall bladder 180° on its long axis thus converting it into a screw-shaped passage. Monprofit (27)

of the bowel attached to the gall bladder



Fig. Cholecystenterostomy (Dog No. 34). The wall of the gall bladder and the ducts are greatly thickened. Notice the tendency to ruga formation. (This dog was killed 60 days after operation.)

He inserted a rubber tube and narrowed the bowel over it by a continuous suture. Von Bardeleben (quoted by Kausch) attempted to lead the gall bladder obliquely through the bowel wall as in the Witzel method of gastrostomy. These modifications on the whole are too time-consuming for clinical purposes and have not been of sufficient value to warrant their general adoption.

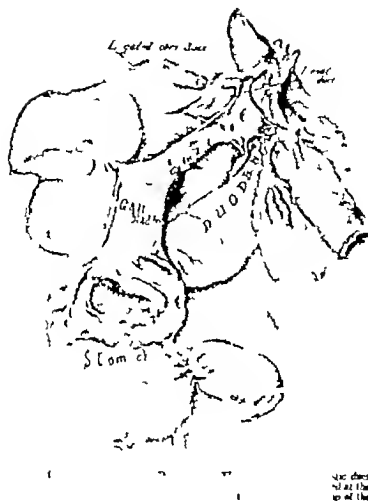
Of far more importance than any digestive

that the micro-organisms circulating in the blood are eliminated by the liver (Biedl and Kraus '20) leads one to conclude that the bile passages are so constructed that they can harbor bacteria at least for a time, without suffering normal death.

intestinal canal. It is here that the character and number of bacteria

about the gastrointestinal canal. The ampulla of Vater is an effective barrier to all foreign bodies such as bacteria-laden food particles. Netter (19) and others have shown that the portion of the common duct next to the ampulla contains micro-organisms although the gall bladder and liver apparently are normally sterile. The fact

permoses. It is generally known that the number of bacteria increases from the duodenum down to the sigmoid. It is also well known that the gastric juices exert a destructive influence on bacteria, but many are unaware that the count in the stomach is higher than in the duodenum (Gilbert and Dornbush '21). The colon bacillus, which is



one of the chief offenders in inflammations of the bile tracts, is however less common in the stomach and duodenum and rapidly increases in numbers from the duodenum down. One of us (12) has found that in fasting dogs organisms are constantly present in both the stomach and duodenum also that streptococci are relatively infrequent and colon bacilli are not at all common in the stomach though frequently found in the duodenum.

Among the earliest clinicians to recognize the danger of ascending infection following cholecystenterostomy was Dujardin-Beau-

meiz (13) who noted in one case the clinical picture of "intermittent hepatic fever" described by Charcot. Kehr also has advised that the use of the operation be greatly limited on account of the danger of bacterial infection. Murphy (6) in 1892 reported that in experimental work with his button, a flap of mucosa covered the fistulous opening allowing the bile to flow into the intestine but preventing the intestinal contents from

ascending. Nevertheless, as reported by various other operations advocated as a result

The first piece of experimental work done to determine the changes in the liver and bile passages following cholecystenterostomy was done by Radsiewsky (10). He doubly ligated the common duct cut between the ligatures and united the gall bladder to the duodenum. Five of his dogs survived the operation and were killed from 30 to 75 days later. From his experiments he drew



Fig. 3 Cholecystoduodenostomy (Dog No. 31). Note numerous round worms extending into the small branches of the hepatic ducts. The pancreas was swollen in this case. While the liver showed no gross abscesses, microscopic sections showed areas of necrosis and fatty degeneration. (This dog was killed 6 months after operation.)

intrahepatic bile passages occurs. (4) invasion by bacterial flora into the liver parenchyma results. He believed that cholecystenterostomy itself carried with it little likelihood of infection of the bile passages and liver but that invasion of the gall bladder with retained intestinal contents was a distinct menace and was likely to be followed by an ascending infection. Hubicki and Sieradzinski (29) operated on seven dogs, some of them by Monprofit's and others by Krause's method. At the end of a year they found suppuration in the bile passages and liver in four of their animals. They believed that the negative results Radsiewsky obtained in some of his animals were due to the fact that they were not allowed to live long enough. Mocquot (30) in 1913 reported the findings in one dog with a cholecystoduodenostomy killed a year after operation and in another dog with a cholecystogastrostomy killed at the end of 4 months. His bacteriological findings in the two cases were practically the same: the livers being sterile, the common ducts containing a few organisms and the gall bladders many. Microscopic examination showed the bile passages and the liver in the duodenostomy practically normal except for a slight increase in the connective tissue. In the gastrostomy there was a marked increase in the connective tissue.

The results obtained experimentally would at first hand seem to contradict those obtained clinically. The large series of cases of Mayo-Robson (11), von Bardeleben (31), Kehr (12) and others with few reported liver infections has placed the operation among

those regarded as relatively safe. On the other hand evidence that no infection occurred is incomplete in many cases. Often the patients died of malignancy soon after the operation. In cases of chronic interstitial pancreatitis the persistence of the stoma might be questioned. No doubt the bile resumes its normal course as soon as the pancreatic obstruction is relieved. It is probably then a question of but a few weeks or months before the fistulous opening has closed. (This is what happened in Dog 8 in our experiments.) The severity of the infection also may be a factor in its clinical recognition. A low-grade hepatitis may be present for a long period without producing marked symptoms and it is only by a careful microscopic examination that the amount of damage done to the liver can be determined. This was demonstrated repeatedly in our experiments and has been shown by Graham (32) in his clinical work.

It is still an open question as to what type of operation is least likely to be followed by an ascending infection of the bile passages and liver. It was in the hope of obtaining a little light upon the relative safety of the various gall-bladder anastomoses that our series of experiments was performed.



Fig. 4. Microphotograph—low power—to show line of

GENERAL METHOD.

and while the results may not be conclusive we believe they demonstrate some facts of clinical importance.

METHOD

Our experiments have consisted in making 42 anastomoses in dogs. The animals which had been starved for 14 hours were operated upon under ether anesthesia. A high right rectus incision was made. Cultures were made from the gall bladder, liver, and from the portions of the gastro-intestinal tract used for anastomosis. Grossly all livers appeared normal at the time of operation, and sections taken in a number of instances were entirely negative. The common duct was then doubly ligated and cut except when otherwise stated. The gall bladder was united to the stomach or intestine by two rows of continuous Lembert sutures of silk or linen, the upper row uniting the serous membrane and the inner passing through all the layers. Great care must be taken with hemostasis as several fatalities occurred from hemorrhage into the gall bladder. The abdominal incisions were all closed without drainage.

In the first six dogs the common duct was not obstructed and somewhat to our surprise the anastomoses practically closed just as a gastro-enterostomy stoma frequently closes when the pylorus is unobstructed. In one case (Dog 13) the common duct was simply ligated with a piece of heavy thread. Thirty

— in all other cases the same technique was employed that is, the common duct was isolated doubly ligated and divided allowing the two ends to retract. In some instances a portion of the duct was resected.

Of 20 cholecystogastrotomies, 17 duodenotomies, and 5 colostomies, 3 gastrotomies, 1 duodenostomy and 1 colostomy died either during or immediately after operation. Four cholecystogastrotomies, a like

as our own experiments have been omitted and a simple statement of the results given. Cultures made from the gall bladder were sterile, both in aerobic and anaerobic cultures in 41 of the 42 dogs. A few colonies of the staphylococcus albus were found in one instance—almost certainly a contamination as this organism is usually found in the skin. Cultures made from the liver were sterile in 32 out of 37 examinations. (No cultures were made in 5 dogs.) Staphylococcus albus in pure culture was found in two instances and various contaminations, mostly hay bacillus, were found in the other three. It is quite probable that all livers were sterile, but that they were contaminated by using the same knife which was employed in making the peritoneal incision. Cultures were uniformly negative after taking the precaution to employ a new knife for the removal of the tissue.

Four of the cholecystoduodenostomies were killed at 10, 36, 66 and 300 days. Seven stomach anastomoses were killed at 2, 6, 8, 35, 75, 120, and 166 days, and three cholecystocolostomies at 2, 2 and 5 days. While it was the purpose of our experiment to keep the dogs much longer this was not practical on

or 300 days and regardless of the viscous em-
ployed for the anastomosis the gall bladder
was infected. Grossly in all cases living more
than a month the mucosa was thickened and
white (Fig. 1). In the older cases, the gall
bladder became narrowed and the stump of
the common duct which was dilated in the
earlier cases atrophied so that a probe could
scarcely be passed down it. No evidence of
ulcer formation was seen at the line of an-
astomosis although the threads were found
loosely attached in many of the older cases
(Fig. 2). A number of the older dogs died of
worms and round worms could be found
obstructing small intrahepatic ducts which
would barely permit of their entrance (Fig.
3). Hairs were found in the smaller hepatic
ducts a number of times.

Microscopically the mucosa of the gall
bladder was inflamed, thickened and fre-
quently there was a tendency to villous
formation. The mucosa and submucosa con-
tained collections of round cells and the
muscularis was infiltrated in most of the
cases. The line of anastomosis usually was a
narrow strip of scar tissue. Sometimes, the
silk or linen suture could be demonstrated
usually with very slight reaction about it
(Fig. 4). The findings in the liver varied
greatly depending upon the amount of
cholangitis. In some cases there was nothing
more than a slight cloudy swelling. In one
cholecystogastrostomy killed 120 days after
operation, there were no changes noted in the
liver in spite of the fact that both colon bacilli
and other organisms were recovered bacterio-
logically (Dog 14). In all of the other dogs
which survived any great length of time, a defi-
nite increase in the connective tissue about
the ducts occurred and in some cases this was
quite marked as early as 66 days (Fig. 5).

Although a round-cell infiltration was fre-
quently found in the interlobular septa, no
definite abscess formation was found except
in two dogs. (One duodenostomy killed in 10
days showed some necrosis in the center of the
lobules. Another killed at the end of 300 days
had developed an abscess between the liver

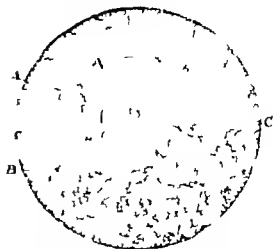


Fig. 5. Microphotograph—low power—to show marked increase in connective tissue and central necrosis of lobules. (Dog No. 34). (This animal was killed 66 days after cholecystogastrostomy). Connective tissue between lobules. A, bile ducts. B, liver parenchyma.

and the gall bladder). In no instances in our series were multiple intrahepatic abscesses found.

Bacteriologically the gall bladders con-
tained many and varied organisms including
chiefly the colon bacillus, the staphylococcus,
and numerous anaerobes. Yeasts and fungi
were not uncommon. The livers in the cho-
lecystogastrostomies were sterile up to 35
days. The duodenostomies killed at 10, 36,
and 66 days likewise had sterile livers but
the dog killed at 300 days had a colon and
staphylococcus infection in the liver cultures.
Two cholecystocolostomies killed 1 and 2
days after operation had infected gall blad-
ders. The other three cholecystocolostomies
died of infection or were killed *in extremis*.
Fecal matter was found in the gall bladder in
every one of these cases, and it seems almost
certain that all colostomies would sooner or
later develop hepatic infection.

It is very difficult to prevent leaks and
peritonitis when the colon is employed while
no difficulty was experienced with the other
anastomoses. This I believe is due in part
to the peculiar nature of the flora of the col-
on and partly to the short large bowel of
the dog which prevents anastomosis without
tension.

CONCLUSIONS

From the foregoing experiments performed upon dogs in which the gall bladder was anastomosed to the stomach duodenum and colon, the following conclusions may be drawn:

1. The gall bladder invariably becomes infected regardless of the viscus used for anastomosis.

2. There is little if any difference between the stomach and duodenum in the matter of rapidity of infection.

3. The colon is not the portion of the gastro-intestinal tract to be chosen by preference. The immediate dangers of peritonitis are much greater and probably liver infections would occur earlier than when the upper part of the gut is used.

4. All livers become infected sooner or later if the method employed in our experiments be followed.

5. Cholecystenterostomy from an experimental standpoint is not an operation to be recommended for use except in well-selected cases such as carcinoma of the pancreas where the temporary comfort of the patient is paramount or irreparable common duct obstruction.

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UNUSUAL CASE OF SARCOMA OF THE MEDIAN NERVE

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THE patient was 40 years of age, American, and unmarried. She had been well until about 5 years ago. At that time she noticed a small swelling in the anterior surface of the right forearm, midway between the wrist and elbow, which was not painful or tender, and which remained practically constant in size. Five weeks before admission

ably from pain in the right forearm and hand, especially at night.

Physical examination showed nothing abnormal in chest or abdomen. The kidneys were normal as to microscopic examination and functional test. Blood Wassermann test was negative. Leucocytes 9,500, hemoglobin 70 per cent. There was very slight diminution of function over distribution of median nerve but not sufficient to be noticed by the patient.

Operation was done May 31, 1931. An incision was made along the anterior aspect of the right forearm, exposing the flexor tendons. There was a large mass, about 8 inches in diameter, which was apparently connected with the median nerve. The median was divided at either end of the tumor, leaving a gap of about 9 inches of nerve, and the mass removed.

The following is the report from the pathological laboratory. Grossly the specimen is a sausage-shaped, asymmetrical mass about 15 centimeters long and averaging 4½ centimeters in diameter.

It is a typical picture of the so-called neurofibroma and its close association with the nerve.

vascular nuclei and many typical mitotic figures.

Preparations through the nerve trunk show in a majority of the bundles a marked fibrosis with atrophy of the nerve fibers. In some of these there was marked infiltration of rather regular spindle

cell sarcoma originating in a neurofibroma.

The wound healed by primary union. It was surprising to see the amount of function still present in the arm and hand.

When it was found that a small incision was made into the mass, but it was entirely a return of the sarcoma.

Amputation of the arm was advised but the patient refused, and she was treated with X-ray and radium. The tumor continued to enlarge and one month later she was again urged to consent to

George L. Crane

She received additional X-ray treatments while



Fig. 1. Gross specimen removed.

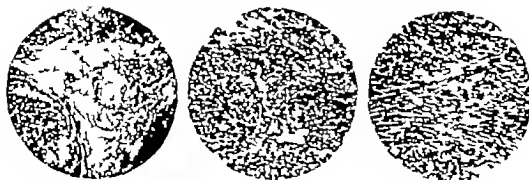


Fig. 2. Photomicrographs of specimen showing squamoid structures of tumor.

In a review of the literature extending back several years, there have been found only two cases of neurosarcoma reported. In one

tibial nerve which was completely removed at operation but which required a subsequent removal of the retroperitoneal lymph nodes where metastases from the nerve tumor occurred. Max Minor Peet. In the *Journal of the Michigan State Medical Society* for July 1917 reports a case of squamoid-cell sarcoma arising in a cavernous lymph and

hemangioma of the musculospiral nerve. In this case the tumor was removed, with part of the nerve, and the nerve ends sutured. Two months after the operation there was no recurrence of the growth and the patient had excellent use of the arm and hand except for a wrist drop.

A number of the textbooks on pathology mention neurosarcoma, and L. Aschoff in his *Pathologic Anatomy* for 1921 characterized true neurosarcomas as being of very rare occurrence. Keen's *Surgery* reports sarcoma occurring in the posterior tibial, popliteal, and peroneal nerves.

The case we are reporting is interesting for the following reasons: (1) its unusual size (2) its prompt recurrence (3) its marked resistance to X-ray and radium (4) the rather positive evidence of its developing from an innocent neurofibroma.

HYDATID CYSTS OF THE HEART WITH REPORT OF CASE

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I AM able to report this case through the courtesy of Dr A. F. Wagner in whose official practice as coroner's physician to the city of Los Angeles it occurred.

CASE J. O. Frenchwoman age 35, found dead Postmortem, January 1911. Heart: hydatid cyst of the right ventricle 5 centimeters in diameter. Typical laminated cyst wall. No daughter cysts or scolices.

The apical portion is narrowed by a mass lying in the

normal size and not invaded by the cyst. Microscopic examination sections from the all of the

I believe on the contrary that the case was one of primary echinococcus cyst of the heart with secondary metastatic infection of the right heart from the

lung cannot with certainty be estimated by its size (Dévè estimates it as the size of a nut in 2 years). Nevertheless it must be remembered that a secondary cyst of the lung may be actually larger than the original heart cyst for the former grows relatively more quickly owing to their non-resistant environment. Dévè mentions a case where the primary heart cyst was the size of a pigeon's egg and the secondary lung cyst as large as a hen's egg.

In this case as a matter of fact, the heart cyst was larger than any of the four lung cysts. Though it has been

of the cyst wall, and the cyst itself was obsolescent.

The situation of the lung cysts, four in number all together and contiguous to the heart (so much so that Dr Wagner suggested direct extension from one to the other) immediately suggests their development as a colony from four scolices in the same brood capsule.

Multiplicity of cysts of the lung (more than two or three) suggests in itself their secondary origin so also does their relatively cortical position, though it has been noted that metastatic cysts of the lungs may be occasionally central. One may mention here incidentally that whereas secondary metastatic echinococcosis of the lungs (which has never yet been diagnosed during life) is fatal, primary parabronchial hydatid cysts of the lung show spontaneous cure by vomiting in 80 per cent of cases.

The picture is not as typical as that in Gruber's case for there the metastatic lung cysts were bilateral (as they are as a matter of

rupture. Nevertheless my explanation is practically certain to be the correct one, as the converse—a secondary heart cyst from a primary lung cyst—is impossible: the pulmonary filter is permeable to the hexacanth embryos.

the
The
fact
liver
temporaneous primary cysts from massive infestation. In some cases the parent cyst in cases of metastatic echinococcosis of the lung has been located in the liver and the iliac bones but in 75 per cent of such cases the right heart is found to be its seat. In echinococcosis hydatidosus, infection by direct extension does not obtain: the hexacanth



Article of heart

death

embryo travels via the blood stream the cross-country like-a pack-of hounds theory is obsolete. The lymphatic route is unproven.

The embryos can and do traverse both the hepatic and pulmonary filters. 75 per cent of them are arrested in the former and 10 per cent in the latter leaving only 15 per cent to develop into primary cysts elsewhere in the body.

The usual course of events in such cases as these is as follows: a primary hydatid cyst of the heart results from an embryo which has surmounted both the hepatic and pulmonary fences. This cyst, because of its uneasy location, ruptures early. This primary rupture is not usually fatal and as a matter of fact passes unnoticed. Secondary metastases of the lungs or brain as the case may be (right or left heart) result from the flooding of the venous or arterial circulation with hydatid sand i.e. brood capsules and

scollies has ever though

The X ray will, sooner or later wipe out this reproach. In this connection it may be well to note that whereas various cardiac murmurs have been noted in some of the cases reported, such lesions are usually "silent." Arnold particularly in his article on the

symptoms "Syncope attacks recur without apparent cause these crises somewhat resemble epilepsy. Sudden death occurs and the autopsy reveals metastatic pulmonary hydatid cysts plus a latent heart cyst."

In the meantime while the metastatic cysts are developing a change occurs in the parent heart cyst, which now becomes multivascular—a purely defensive reaction. Sooner or later a secondary rupture occurs. The primary rupture passes unnoticed because the elements set free are microscopic. The secondary rupture is immediately fatal in the great majority of cases from gross, massive, brutal embolism (daughter cysts membrane etc.) of the pulmonary artery or brain. In the case of the pulmonary artery the five known exceptions are the cases reported by Andral, Budd, Wanderlich, Letten and Chian in which death was deferred for several months. Such is the graphic picture—and we are indebted for it to F. Dér.

That spontaneous cure of hydatids of the heart does occur occasionally we know from the cases cited by Coote, Rokitsankv, Goodhart, Habershon, and Madelung.

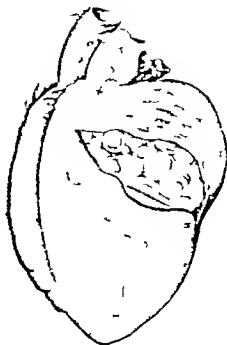
reproach " " female, age 17) in 1905. The second was reported by Davis and Balboni under the title of "hydatid cyst of the brain" (case 26) in 1917. Lyons's statistics, which included the earlier ones of Oiler and Sommer and appeared in 1901 contained no case of echinococcus disease of the heart. Most of the cases reported throughout the world have been in young subjects, average

age 23 though Klehmet's and Grulee's were aged 27, Rose's aged 30, and the oft-quoted one of Bernheim, 6,

HISTORICAL

Hydatid cysts of the heart were reported in the 17th and 18th centuries by Thebesius, Rolincke and Fanton and at the beginning of the 19th century by Portal Dupuytren, Meckel Price and Morgagni. All these cases are dubious as the word hydatid had then a very vague significance.

The first paper of any importance as that by Grosser



showed a small cyst as found free under the tricuspid a/v and several in the pulmonary artery (cf. Devaine and Thomas)

ANATOMICAL RECORDS 1887

A. Smith—838, cyst filled right ventricle so as to block the pulmonary artery (Smith and Broderick—Devaine obs. 21)

Another of the cases quoted (obs. 9 bis) is that of Barclay whose patient was a sailor age 26—rheumatic. The

Boecker case (Devaine obs. 9 ter) may also be mentioned—a boy age 5 whose heart was larger than

ANATOMICAL RECORDS 1887

In 87 L. de Welling of Paris published his thesis based on 30 collected cases. His list

In 877 Verwer's paper appeared containing reports of 20 cases

In the same year Devaine published his *Traité des*

ANATOMICAL RECORDS 1887

ANATOMICAL RECORDS 1887



FIG. 1 Hydatid cyst in intercostal space
 Taken from [Hydatid] [cyst] in [intercostal] by Professor
 A. R. [Name], Surgery Gynecology and Obstetrics, 1907, p.
 179



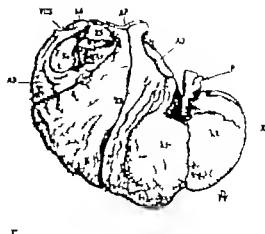
Australia, 1873

of the [unclear] [unclear]

It will be noted that in cases 1, 3, and 4 daughter cysts obtained i.e. that a previous rupture had probably taken place.

Cases 2 and 3 were in young lads as is usual but case 1 was definitely stated to have been in an adult man.

Coming now to the present century Hydatid cysts of the heart are rare, obtaining as they do in less than 2 per cent of all cases of echinococcosis contrast liver 75 per cent and lung 10 per cent.



*dans le cas compliqué unanimité reconnut
l'existence. Mort rapide par rupture d'un des kystes par
cardiaque par l'inspiration brusque. (Lamont et Coe, 1920.)*

(Davis and Bopp) The case is that of Scotch soldier
age 23. The symptoms of tuberculosis — hemoptysis,
weight loss, evening temperature, sweating, etc. but not
the physical signs of phthisis. Suddenly intense dyspnea
occurred followed by collapse, and he died in a few hours.
Postmortem heart — large anteroposterior clots in both

Beauchamp, in 1909, reported case of hydatid cyst of the
heart and compared it with 38 others which he had

No heart murmurs. Dyspnea and severe neuralgia in

she had symptoms of pulmonary tuberculosis, was
pregnant, and had had syphilis pulmonary and spinal

cardiac rupture had occurred 28 times into the right heart.

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ABSCESS OF THE LUNG

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In spite of the fact that within recent years complete and authoritative articles on abscess of the lung have been published, I make no apology for again bringing this serious disease to the notice of the medical profession.

There are few conditions, which, arising often from such trivial and preventable causes as does abscess of the lung so quickly

During the war I saw many of the latter due to anaerobic infection on a traumatic lesion but apart from these I have seen only five cases of massive gangrene in civil practice.

HISTORY

trespassing cough, the long convalescence, and above all the foul smelling and tasting sputum break the morale of the stoutest patient and present one of the most difficult conditions to relieve.

Because localized gangrene and abscess are so closely associated, it is usually impossible to determine whether or not one has supervened on the other or preceded the other. For the purpose of discussion, we include under abscess of the lung all types and degrees of abscess except those due to tuberculosis and bronchiectasis and all degrees of gangrene of the lung except a massive gangrene involving an entire lobe or lung.

Hippocrates pointed out that lung abscess sometimes burst into a bronchus and cured itself spontaneously and that occasionally it ruptured into the pleural cavity and had to be drained. Willis in 1664, and Purmann, in 1692 suggested incision for drainage and Baglivi, in 1696 opened a lung abscess resulting from a saber thrust. Great impetus was given to the study and treatment of the condition in the eighteenth century. Du Barry in 1725 reported three cases, one of the patients died following drainage and two recovered. Campardon, in 1759, described a cure following drainage. Sharpe in 1769, suggested early intercostal puncture. Pouteau and David, in 1783 advised radical exploration and opening of abscesses. Pouteau in 1793 reported operative cures and in the same year Gumprecht published an exhaustive treatise on the condition. Faye in 1797 reported a cure following operation. Because

TABLE I—ABSCESS OF THE LUNG

| Age | Cases |
|--|-------------|
| Consider | 13 |
| Age Incidence | |
| From 1 to 1 years | 3 |
| From 11 to 20 years | 3 |
| From 21 to 30 years | 21 |
| From 31 to 40 years | 6 |
| From 41 to 50 years | 7 |
| From 51 to 60 years | 3 |
| From 61 to 70 years | 4 |
| Leucocytes | |
| From 3,000 to 47,000 | |
| Average 18,000 | 3 |
| Below 10,000 | 1 |
| With leukocytosis, 5 to 6 | 67 per cent |
| Average leucocytosis | |
| Cause | |
| Traumatic (all general accidents but one) | 6 |
| Infection of tooth | 3 |
| Influenza | |
| Pneumonia | |
| Bronchopneumonia | |
| Operation (fluorop and chest plate) | 1 |
| Operation (drainage of frontal sinus) | 1 |
| Inhalation (gasoline, kerosene and kerosene) | 3 |
| Trauma | |
| Hydatid cyst | |
| Actinomycosis | 1 |
| Apparition | 1 |
| Polyspermatism | 1 |
| Local infection (intra uterine vaccination) | |
| One lung (one from market liver) | 3 |
| Uncertain origin | 1 |

TABLE II—SYMPTOMS, COMPLICATIONS, FURTHER WEIGHT LOSS, WEIGHT GAINED

| Symptoms | Complications | Further Weight Loss | Weight Gained |
|---|---------------|---------------------|---------------|
| Loss of weight, 1000 | | | |
| Pain in chest | | | |
| Styptosis | | | |
| Exhaustion of lungs | | | |
| Maxillary abscess | | | |
| Leucocytosis | | | |
| Low hemoglobin percentage | | | |
| Respiratory | | | |
| Complications | | | |
| Empyema (over opposite chest) | | | 4 |
| 1 unoperated empyema (same side) | | | 6 |
| Bronchitis (same or opposite side) | | | 3 |
| Small abscesses from repeating operation | | | |
| Subphrenic abscess (same side) | | | |
| Hydatid cyst of the liver | | | |
| Actinomycosis | | | |
| Symptoms, First to 4 | | | |
| 1 to 3 months each day | | | 3 |
| 2 to 3 months each day | | | 4 |
| 3 to 4 months each day | | | 3 |
| 4 to 5 months each day | | | 23 |
| 5 to 6 months each day | | | 20 |
| Weight Loss | | | |
| 1 to 3 months, in case 33 pounds, more than 30 pounds | | | |
| Weight Gained after Treatment | | | |
| 1 to 3 months, after when normal after 30 pounds | | | 34 |
| 1 to 3 months, after when normal after 30 pounds | | | 6 |
| 1 to 3 months, after when normal after 30 pounds | | | 14 |
| 1 to 3 months, after when normal after 30 pounds | | | 1 |

of the indifferent results following surgery and especially because of the influence of Trousseau for the next one hundred years there was a return to more palliative methods of treatment.

von Jheriff, Hunter and Stokes in the early part of the last century opened abscess cavities with a trocar. Bell in 1805 reported one cured patient and several failures. Richardson in 1812 and Jaymes, in 1813 reported cures. Calhoun in 1815 advised

excise in the same or other lung. According to Carré during the one hundred years, up to 1893 only twenty two authentic cases are reported in the literature.

Green, in 1860 attempted to catheterize abscesses and various injections directly into the bronchial tube were employed but with unsatisfactory results. Maragliano however reported the cure of an abscess of 30 years standing with injections of silver nitrate.

Koenig, in 1864 wrote at length on the subject, and a little later Jassensku did some interesting experiments on penetrating intra thoracic and pulmonary wounds. In 1872

and 1844 advised several patients successfully. Borchert pointed out that before undertaking drainage the exact site and limit of the lesion should be determined and that no other foci should

TABLE III.—LOCALIZATION TREATMENT

| Localization to Lung | Cure |
|------------------------|------|
| Right upper lobe | 10 |
| Right lower lobe | 4 |
| Middle lobe | 2 |
| Left upper lobe | 5 |
| Left lower lobe | 4 |
| Apices (left, & right) | 3 |
| Not clearly defined | |
| Treatment | |
| Medical | 17 |
| Dead | 5 |
| Not greatly benefited | 3 |
| Fair health | 1 |
| In good condition | 10 |
| Surgical | 7 |
| Dead | 1 |
| Good health | 13 |
| | 5 |

months

months

7

6

Waring-Carran reported a spontaneous cure after the abscess had ruptured through the diaphragm followed along the round ligament and burst through the skin at the umbilicus.

Mosler and Hueter in 1873 were the first deliberately to open a bronchiectatic cavity in the right upper lobe. They went through the third intercostal space, opened the cavity, introduced a tube through which pus was carried off and irrigated the cavity with carbolic acid. Truac in 1885 wrote a classical treatise on the subject and Schmidt and Block the same year wrote on the surgical treatment.

Gluck, Schmidt, Block and Brondi, were the first to show that partial resection of the lungs was possible in animals. The work of Fenger, Bull, Reclus, Quincke, Tuffier, Karew,

reported 19 cases, of which 14 were probably true abscess. In 1884 he performed outstanding work for that period. Runeberg in 1887 collected 11 cases in which 3 patients had recovered following operation. In 3 cases the diagnosis was doubtful. Martius, in 1891

TABLE IV.—DEATHS

| Age | Sex | Death |
|-----|-----|-------|
| 1 | | 1 |
| 2 | | 2 |
| 3 | | 1 |
| 4 | | 1 |
| 5 | | 1 |
| 6 | | 1 |
| 7 | | 1 |
| 8 | | 1 |
| 9 | | 1 |
| 10 | | 1 |
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| 93 | | 1 |
| 94 | | 1 |
| 95 | | 1 |
| 96 | | 1 |
| 97 | | 1 |
| 98 | | 1 |
| 99 | | 1 |
| 100 | | 1 |

collected 22 cases in which abscess was found at necropsy only. Humber in 1893 reported a successful operation for lung abscess on a child 13½ months old.

Artificial pneumothorax was employed for the first time in 1894. Forlanini employed it in the treatment of a tuberculous cavity. In 1897 Tuffier in his classical monograph on thoracic surgery collected 216 thoracic cases in which operation had been performed. In 36 there was definite cavitation, in 49 abscesses, and in 11 abscesses due to foreign bodies imbedded in the lung.

Murphy in an address on thoracic surgery in 1898 was almost 20 years beyond his time. He advocated the treatment of lung abscess that should in my opinion, be adopted today. Fenwick in 1900 collected

of 1

90

136

ature on the subject and reported 75 collected cases of lung abscess following pneumonia found at necropsy. In 1903 Garré collected 278 cases. During the past 20 years important contributions to the subject have been made by Lenhart, Koerte, Kuelbs, Andrews, and M. K. in 1904.

and M. K. in 1904 and Landis, Hedblom, Hartwell, Lemon, Lynch, and others.

From April, 1920 to November 1921 54 patients were treated for abscess of the lung at the Mayo Clinic (Tables I, II, III, IV and V).

ETIOLOGY

Predisposing causes are diabetes, alcoholism, fatigue, exposure, starvation, wasting diseases such as typhoid and typhus and

TABLE V—ABSCESS OF THE LUNG FOUND ONLY AT NECROPSY

| Case | Sex Age | Operations | Leucocyte count probably after abscess had developed | Cause | Duration of illness, days | Location of abscess | Remarks, secondary findings, etc. |
|--------|------------|---|--|---|------------------------------------|---|--|
| A34746 | F 39 | Pyelotomy | 22,000 | Distal septum from subcutaneous infect abscess | 45 | Left lower lobe | Right hydatidosis; left intercostal subphrenic infect abscess, thrombosis of portal vein, necrosis |
| A34905 | M 66 | Cholecystectomy choledochostomy appendectomy | | Bilateral lobar pneumonia | 10 | Left lower lobe multiple | Extensive lobar pneumonia which originated in the left lower pneumonia |
| A37124 | M 66 | Excision of bladder for cancer 5 days later stricture removed for pyelitis | | Pyemic embolic | 3 | Multiple, bilateral | Pyemia, necrosis given at the clinical course of death |
| A34798 | M | | | Infarction | 75 | Multiple bilateral, both lower lobes | Bilateral emphysema, conjugated cystitis |
| A36079 | M 66 | | 1,300 | Erythema from an infected finger | 66 | Multiple bilateral | Multiple abscesses of lung, pleura and (small) parts of right walls and right lobe, pleurothorax abscess found in the blood |
| A31124 | M 66 | Partial gastrectomy and partial duode- nectomy | | | 2 | Multiple in right lung | Pneumonia, abscess diffuse suppurative pneumonia very probably multiple |
| A31360 | M 75 | Cholecystectomy and duodenectomy | | | 14 | Left lower lobe multiple | Multiple lung abscesses |
| A31448 | M 52 | Posterior gastro- enterostomy for cancer of pylorus | | Embolism-pneumonia | 9 | Right upper lobe | Bilateral abscessing broncho- pneumonia |
| A37764 | M 70 | Suprapubic prostate ectomy | | Embolism-pneumonia, repeated multiple pneumonia emboli 3 days after opera- tion | 14 | Multiple, both lungs | Arterio and chronic cystitis with infection and picture of pneumonia emboli, thrombosis of portal vein, pyelitis about two in the left, common lung veins, multiple repeated pneumonia emboli with bilateral bronchopneumonia and multiple abscesses of both lungs |
| A36196 | F 66 | | 24,000 | Infarcted broncho- pneumonia | 2 | Right upper lobe | Bilateral emphysema, bilateral purulent bronchitis |
| A36099 | F 64 | | 11,500 | Bronchopneumonia both sides | 14 | Multiple bilateral | Right emphysema, scattered bronchopneumonia |
| A37767 | M 39 | Posterior gastro- enterostomy gastric ulcer | 25,800 | Bronchopneumonia | 25 | Right side | Chronic bronchopneumonia with a central abscess (right lung) |

such malignant infections as variola. More direct causes are operations around the nose and throat, lobar pneumonia, broncho-pneumonia, influenza, bronchitis, emboli from distant foci inhalation of foreign bodies vomitus, or irritating gases, extension direct from adjacent collections of pus, as

disease I have been impressed by the high

emphasized that lung abscess is not a rare sequela, nor one to be lightly entertained

Not long since I pointed out to a friend of mine, whose daughter was about to have a tonsillectomy under general anesthesia, the danger of abscess following operation under such an anesthetic, and urged the use of local anesthesia. Either was employed the girl developed a lung abscess, and now (1 year later) she is slowly convalescing. Undoubtedly

and throat when local anesthesia has been employed

not always the well conditioned as by persons that it is in normal persons. Under

one case only has occurred and that in association with general septicemia. Richard son, in 1912 was the first to point out the

tomy. Manges reported 9 cases seen at Mt. Sinai Hospital in 1 year and quotes Weseler that 28 per cent of the cases of pulmonary operations seen in the roentgen-ray department of Mt. Sinai Hospital were due to tonsillectomy. Pottenger in 1919 reported having seen in one and one-half years, 20 cases following tonsillectomy. Of 32 lung abscesses reported by Whittemore in 1921 17 followed tonsillectomy.

Richardson believes that abscess is the result of an embolic process. Conkley in discussing Richardson's article says that abscess is due to the aspiration of infected blood or pieces of tonsillar tissue. The thick cheesy or thin milky bacteria laden secretion within the tonsils is expressed out either when the tonsils are seized by forceps, as in the dissection method or as the tonsils are pushed through the fenestra of the tonsillotome as by the Sluder method. This seems logical. Emboli from the plexus of veins in the tonsillar bed undoubtedly cause a small percentage of such cases but the majority of them follow aspiration. Of 208 reported abscesses of the lung following tonsillectomy 7 only were in patients operated on under local anesthesia. The following facts favor the theory that it is usually by aspiration that infective material is carried to the lung.

1. An extremely small percentage of abscesses of the lung have followed tonsillectomies and other operations on the nose

Reports and opinions vary with regard to the incidence of lung abscess following lobar pneumonia. Early writers considered abscess of the lung a frequent sequela of lobar pneumonia. Laennec says that such abscess follows a pneumonia so commonly that in the year 1823 he met with 20 cases. On the other hand Fraenkel, in observing 1200 patients with lobar pneumonia found less than 2 per cent with evidence of abscess. MacRae collected 75 cases following acute lobar pneumonia. Hamman says that Aufrecht found none in 1901 patients with lobar pneumonia. Aufrecht in 253 fatal cases of pneumonia, found only three abscesses at post mortem. Hartwell states that of 770 patients with pneumococcus lobar pneumonia at the Rockefeller Hospital only 2 developed abscess. He quotes MacCallum. "I am skeptical about those abscesses said to occur in the course of a pneumococcus lobar pneumonia." In all I have collected only 127 cases reported as due to lobar pneumonia. I agree with Whittemore who says. Although medical books give lobar pneumonia as the most common cause of lung abscess, in my experience it has seldom if ever been the cause. In our last series, two cases only were due to lobar pneumonia.

Bronchopneumonia is followed by abscess in a small percentage of patients. I have collected 32 such cases. However I agree with Hamman that lung abscess is more common following bronchopneumonia than following lobar pneumonia. One hundred and fifteen other cases are reported in the literature as following pneumonia, but it is not clearly stated whether they were lobar or bronchopneumonia. There is no doubt that particular

TABLE VI—CAUSE OF ABSCESS OF THE LUNG IN REPORTED CASES

| Author, date | Predisposing pathological condition | Location of | Final result |
|-------------------------|-------------------------------------|--------------|--|
| Foster, 1897 | Accumulation | Foreign body | |
| McRae, 1906 | Compaction of lobes (Pneumonia) | | |
| Clark and Marston, 1906 | | Foreign body | |
| Tyler, 1907 | Pneumonia, type and grade unknown | | Abscess of the lung Abscess of the appendix |
| W. H. H. 1907 | | Foreign body | |
| 1908 | | Foreign body | |
| 1909 | | Foreign body | |
| 1910 | | Foreign body | |
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| 1994 | | Foreign body | |
| 1995 | | Foreign body | |
| 1996 | | Foreign body | |
| 1997 | | Foreign body | |
| 1998 | | Foreign body | |
| 1999 | | Foreign body | |
| 2000 | | Foreign body | |

TABLE VI—CAUSE OF ABSCESS OF THE LUNG IN REPORTED CASES—Continued

| Author date | Preceding pathological condition | Aspiration of | Lesion from |
|-------------------------|--|---|--|
| Hartwell, 1900 | Changue or lobar pneumonia 14, bronchopneumonia 27, pericarditis 1, emphysema 1 | Foreign material during tracheotomy | Endocarditis 7; Infective endocarditis 6 venous thrombosis 6 |
| Fisher, 1902 | | Foreign material during bronchotomy 14 | |
| Porter, 1904 | | Foreign material during bronchotomy 4 | |
| Williams and Dodd, 1905 | | Foreign material during bronchotomy 3 | |
| Moss, 1907 | Changue or lobar pneumonia 7 | Foreign material during bronchotomy kernel of corn | Abscess of appendix 1, cystic endocarditis suppurative bronchitis |
| Lynch, 1911 | Changue or lobar pneumonia 1, tuberculosis 2, lymphadenoma | Foreign material during bronchotomy 1, sea water foreign body 3 | Infected gall bladder 1 abscess following operation 10 |
| Watkinson, 1911 | Actinomycosis | Foreign material during bronchotomy 17 portion of tooth 3, foreign material during operation on nasal septum | |
| Lockwood, 1912 | Changue or lobar pneumonia 1, bronchopneumonia 1, actinomycosis 1, tuberculosis 1, carcinoma 1 | Foreign material during bronchotomy of portion of tooth 3, foreign material 4, acute apoplexy on nose 1, foreign body foreign material during operation for heart lip and chest valve 1, thrombotic tumor | Acute gangrene 1, infected liver 1, infected appendix 1, scarlet fever 1 |

ly in lobar pneumonia, a certain percentage of patients develop small petechial abscesses which clear up without going on to extensive cavitation these cases are neither diagnosed nor thought of as such.

During small pericardial abscess

who died necropsy revealed small subpleural abscesses, but only a small percentage of those who survived developed necrosis and cavitation to a degree that the lesion could be diagnosed.

10 cases of the cause influential

pneumonia, quoted by Hedblom, abscess occurred in 3

Empyema with rupture through the visceral pleura and extension into the parenchyma of the lung with the development of a true lung abscess does occur but is extremely rare. The process is usually reversed.

A fair percentage of all the lung abscesses reported by Hedblom.

in causing the extraction of teeth or of pathological products of suppurative lesions around the nose buccal cavity and throat

from diphtheria, cancer of the tip tongue jaw or larynx, diverticulitis of the esophagus with regurgitation and difficult swallowing, cancer of the esophagus or mediastinum perforating the trachea, and during examination with the bronchoscope or esophagoscope and the passing of an esophageal bougie or stomach tube. Sixty-eight cases are reported due to inhalation of foreign bodies. Weist collected over 1000 reported cases due to aspiration of foreign bodies into the bronchi. A kernel of corn was the chief offender. Eight cases are reported following aspiration of sea water. Bullowa saw four such patients in 1 year. Five cases are reported following trauma. I have seen 4 such cases aside from those following gunshot wounds.

A definite percentage are due to embolism. Embolism of the pulmonary artery is a common cause of lung abscess. It is caused by venous thrombosis, distant abscesses, and so forth.

Hartwell reported 4 cases of pulmonary thrombosis following general operations. Hedblom reported 1 case.

to pulmonary thrombosis. On the whole

however I believe abscess is a rare sequel of such a condition. I have never seen such a case (Table VI).

MORBID ANATOMY AND PATHOLOGY

Abscesses of the lung may be large or small, single or multiple, acute or chronic, simple acute or acute gangrenous or simple chronic or chronic putrid. An abscess that persists longer than a month is considered chronic. The pathology of abscess of the lung is as varied as its etiological factors.

Abscess of the lung differs from abscess elsewhere. In the lung a variable area, even a whole lobe may be the seat of some other disease, the abscess developing within the diseased portion whereas the tissues surrounding abscesses in other organs are usually normal. Abscess may develop in previously healthy lungs, but more often occurs in those already inflamed or at least in tissue offering a lowered resistance to such a process. For example while aspiration abscess develops in healthy lung tissue it probably more easily gains a foothold in the lung of a patient already debilitated or in a lung that has

of pneumonic process
 vatory
 blood
 in the
 bronchi is in the lung
 Abscess of the lung starts from these three sites. Generally speaking there is localized or diffuse hyperemia of a portion of the lung followed by diminished circulation to the part, ingress of pyogenic organisms, and necrosis and pus formation. In a pneumonic pulmonary abscess, the process is one of more acute inflammatory reaction with exudation of leucocytes at certain points or in a single area not confined to the alveoli but affecting the interalveolar tissue with a central area of
 obstructed
 bus, with
 too, and
 necrotic.

A distinction between gangrene and abscess may be uncertain even at necropsy. Macroscopically pulmonary abscess presents circumscribed greyish yellow greenish grey or

reddish brown areas containing pus, caseous debris and often small isolated portions of pulmonary tissue and calcareous particles, so-called lung sequestra. The simple acute abscesses have necrotic walls and show almost no line of demarcation from the healthy lung tissue. This necrotic area is surrounded by a densely infiltrated inflammatory zone and by an outer zone of redematous lung tissue. The acute gangrenous cavities are more irregular with reddish black or greenish brown sloughing necrotic areas, they are extremely foul smelling and ill defined. They tend to infiltrate in the surrounding lung tissue which is firm and airless and often the seat of small bronchiectatic cavities.

accrual
 usually
 tissue lining and are nearly always surrounded by a limited area of bronchiectasis. The cavity ruptures usually into a bronchus, but occasionally into the pleural cavity.

bacteria reach the blood stream through the pulmonary veins and produce general septicemia and pyemia.

Pleural adhesions are present in the majority of the chronic cases, and probably in the majority of acute cases in which the abscess is situated peripherally. A fibrinous or seropurulent pleuritis and thickening of the visceral pleura covers the abscess area in most instances.

The bronchial glands are usually enlarged and the bronchial mucous membranes thickened and reddened by irritation. Often the mediastinal glands are enlarged. The bronchioles opening into the abscess in chronic cases are hard sclerosed and the seat of calcareous deposit as are the adjacent

empyema. It is probable that, primarily a subpleural abscess, ruptured into the pleural cavity, caused empyema, and then healed on the visceral surface but extended into the tissue of the lung and developed into a true abscess.

Of 43 patients that I operated on late for the removal of pieces of shrapnel or bullets imbedded in the lung, 30 had a localized collection of pus around the missile but completely walled off from the healthy parenchyma by a definite fibrous sac. In only one case was there a patent bronchus opening into the cavity through which the patient raised some sputum.

If an abscess of the lung has developed around a foreign body imbedded in a bronchus, the abscess will be fairly well localized but extremely foul. Such a degree of necrosis indicates that the abscess supervenes on localized gangrene, a localized bronchiectasis usually surrounds such an abscess and extends along the involved bronchus.

The contents of pulmonary abscesses vary with the cause, pus, isolated shreds of lung tissue, hemosiderin, cholesterol, pieces of metal, teeth, peanuts, kernels of corn, food particles, jellylike bodies typical of echinococcus, pieces of hair and so forth from a dermoid and calcareous deposits may be found. In one case I found a calcareous sequestrum irregular and jagged measuring about 3 by 1.5 centimeters. Fraenkel reported a deposit about 4 by 6 centimeters, in a large cavity in the right upper lobe.

BACTERIOLOGY

The bacteriological findings in abscess of the lung vary widely. While pyogenic organisms cause most of the abscesses saprophytes are sometimes the cause. Anterobic organisms are found in a fair percentage of cases, but practically always associated with pyogenic types. Even in abscess following lobar pneumonia, the pneumococcus or pneumonia bacillus of Friedlaender is almost always associated with other pyogenic strains. The bacillus of influenza, staphylococcus pyogenes aureus or staphylococcus pyogenes albus are present in many abscesses, very often streptococcus viridans occasionally

streptococcus hemolyticus, and sometimes bacillus coli.

Cohn reports a case due to Friedlaender's bacillus only. Koranyi obtained a pure culture of staphylococcus pyogenes aureus from the blood of one patient, but could not demonstrate pathogenic bacteria in the sputum. Hartwell in 148 patients with lung abscess and gangrene, found staphylococcus pyogenes aureus in most cases. Hitzig made eight bacteriological examinations of the sputum of a patient with abscess in the right lower lobe and found the typical bacillus of influenza in every instance but no other organism. The sulphur bodies of actinomyces, filamentous organisms, yeast fungi and spirochaetes should be looked for. Buday has found the fusiform bacilli and spirilla in most of the so-called gangrenous abscesses.

THE LOCATION OF ABSCESSES

The majority of abscesses develop in the peripheral portion of the lungs. In 71 of my cases 57 (79 per cent) were peripheral, a small percentage occur in the hilus, and the rest centrally in the lobe.

Norris and Landis assert that they occur nearly three times as often in the right lung as in the left, and Lemon says that they occur three times as often in the lower lobes as in the upper. In Lemon's series they occur only twice as often in the right lobes. In 292 cases collected by Lemon, 86 were in the upper lobe, 193 in the lower and 14 in the middle.

on the left side 157 occurred in upper lobes and 266 in lower lobes. That is the right side was involved two and one half times as often

as often as the upper lobe and about three eighths as often as the lower lobe. Multiple abscesses occur in approximately one fourth of the cases, but are confined to the same portion of the lung in all but about one-thirtieth of the cases.

TABLE VII—LOCATION OF ABSCESS

| Location | Patients | Per cent |
|------------------|------------|----------|
| Right side | 37 of 517 | 71 |
| Left side | 150 of 517 | 29 |
| Upper lobes | 157 of 447 | 35.0 |
| Lower lobes | 266 of 447 | 60.0 |
| Middle lobe | 14 of 447 | 3.0 |
| Right upper lobe | 40 of 193 | 21.0 |
| Middle lobe | 24 of 193 | 12.0 |
| Lower lobe | 67 of 193 | 35.0 |
| Left upper lobe | 3 of 193 | 2.0 |
| Left lower lobe | 49 of 193 | 25 |
| Acute | 95 of 111 | 85.0 |
| Chronic | 124 of 321 | 37 |
| Peripheral | 54 of 71 | 79 |

Abscesses due to pneumonia and influenza are practically always peripheral and usually

pneumonic abscesses are in the lower lobes. They are often multiple but are usually confined to one lobe. In 160 patients with lung abscess following pneumonia the abscess occurred in the upper lobe in 46, and in the

the upper
flowing the
aspiration of foreign bodies, such as teeth
teeth and so forth, occur more often in the
right lower lobe. The majority of those due
to trauma occur in the right lower lobe
(Tables VII and VIII)

SYMPTOMS

Abscess of the lung is a disease of symptoms rather than physical signs. The symptoms vary with the cause of the disease, the general resistance of the patient, the duration of the affection, and the extent of pulmonary involvement. When the abscess is due to pneumonia, prolonged fevers, septic emboli or the more acute infectious fevers, the evidence of the development in the lung may be masked by the general constitutional signs

of the disease. However when cough, dyspnea, pain in the chest, and the raising

usually persists, abscess should be suspected. When abscess develops in cases of lobar pneumonia although the temperature may fall as usual it gradually mounts again usually higher than during the course of the disease and is characterized by morning remission and evening exacerbations. The

detected on auscultation. As the process of

regular course and the patient appears to all intents and purposes to be recovering entirely except that a small localized area of dullness still persists. About the fifteenth or twentieth day patients begin to run an irregular fever develop vague joint pains, occasional head ache and pain in the chest. A cough develops then dyspnea and suddenly in a severe coughing attack purges from the mouth. Often (I believe in about 50 per cent of such cases) bright blood, varying from the faintest trace to a pint appears. I cannot find a case reported of fatal initial hemorrhage in pyogenic lung abscess. The patient may recover rapidly after this or he may recover partially only to have similar repeated attacks, or run the course of an ordinary lung abscess.

Lung abscesses following total lobectomy usually produce foul expectoration by the tenth or fifteenth day. Howler states that sputum in an aspiration abscess becomes purulent on the fourteenth day. The great majority of these patients, if carefully observed will show signs of a localized broncho-pneumonia before the third day. A small percentage does not produce sputum before the third week, and in some cases not until the fifth or sixth week they present the

TABLE VII—LOCATION OF ABSCESSSES DEFINITELY STATED

| Author year | Cases | Right upper lobe | Right middle lobe | Right lower lobe | Left upper lobe | Left lower lobe | Right side | Left side | Cyber lobe | Lower lobe | Multifocal |
|--------------------------|-------|------------------|-------------------|------------------|-----------------|-----------------|------------|-----------|------------|------------|---|
| Waring Carson 1911 | | | | | | | | | | | |
| Foster and McCune 1914 | 5 | | | 4 | | | | | | | |
| Wachsmuth, 1919 | | | | | | | | | | | |
| Aufrecht 1920 | 27 | | | | | | | 6 | | | |
| Clark and Martin, 1922 | | | | | | | | 7 | | | |
| Kerr 1922 | 7 | 2 | | | 2 | 12 | | | | | |
| Barnston, 1922 | 6 | | | 2 | | | | | | | |
| Kerr and Landon 1923 | 30 | 7 | | | | | | 6 | | | |
| Walker 1924 | 14 | | | | | | 21 | 24 | | | 7 back series |
| Scudler 1924 | 16 | 6 | | | 8 | | | | | | |
| Morgan, 1924 | 8 | | | | | | | | | | |
| Yankner 1927 | | | | | | | | | | | |
| Trocksbury 1928 | | | | | | | 7 | 2 | | | |
| Hallahan, 1929 | 28 | | | 13 | 2 | | | | | | right upper and lower right lower and post the others |
| Wunder 1930 | 90 | | | | | | | | 42 | 11 | |
| Schwartz and Wunder 1931 | 70 | | | | | | | | | | upper and lower lobes |
| Lemon 1932 | 26 | | 6 | | | | | | 5 | 5 | |
| Harwood 1932 | 20 | | 2 | | | | | | 5 | 12 | |
| Whittemore 1932 | 41 | | | | | | | | 23 | 6 | |
| Lockwood | | 10 | | | 8 | 8 | lobes | lobes | | | |
| Total | | 66 | | 17 | 12 | 20 | 27 | 34 | 104 | 30 | 7 |

same signs as the delayed pneumonia type and eventually rupture into a bronchus and run the same course as the group described following pneumonia. These abscesses are probably due to emboli from the tonsillar bed necrosis and liquefaction occur and eventually the pus bursts through a bronchus and is spat up.

Regardless of the cause, loss of appetite, progressive loss of weight, emaciation, general weakness, pallor, productive cough, foul sputum, pain in the chest, variable dyspnea, fluctuating temperature and leucocytosis characterize the disease. In the closed type of abscess there is usually a peculiar putrid odor to the breath even though there is no sputum. Clubbing of the fingers occurs in most cases and watch crystal nails, in a cer-

tain percentage. The peculiar clubbing of the fingers, characteristic of pulmonary hypertrophic osteopathy is interesting. Phenister and Butler have been particularly interested in it. The hemoglobin is reduced in all chronic cases. In most cases the red count is low. Chills and sweating occur in most patients at some stage. Approximately 50 per cent of all patients have some blood in the sputum at some time during the course of the disease. Although Osler found elastic tissue in the sputum of every patient and although Aufrecht says "The presence of abscess of the lungs can be positively assumed only when elastic fibers can be demonstrated in the sputum," a study of the literature and personal experience has led me not to expect it in more than one third of the cases. In the

TABLE IX—ULTIMATE RESULTS

| Author year | Cases | Mortality | | | | | | Cured | | Improved | | With funds | |
|-----------------------------|---|-------------------|----------|--------------------|-----------------|-------------------------------|----------|----------------|---------------|----------|----------|-------------|-------------|
| | | Medical treatment | | Surgical treatment | | Medical or surg. or treatment | | | | | | | |
| | | Cases | Per cent | Cases | Per cent | Cases | Per cent | Cases | Per cent | Cases | Per cent | Cases | Per cent |
| Pomper and McNeer, 1882 | 6 | | | 2 | 33 | | | | 7.0 | | | | |
| Trabold, 1892 | 47 ^a 54 ^b | | | 2 | 37 34 | | | 7 ^a | 33 29 | | | | |
| Quicker, 1898 | 24 | | | | | 20 | | 20 | | | | | |
| Tuller, 1897 | | | | 4 | 56 | | | 7 | 74 | | | | |
| Murphy, 1897 | 71 68 | | | 16 17 | 22 25 | | | 40 39 | 56 56 | | | 5 3 | 7 5 |
| Schultz, 1901 | 12 29 | | | 6 7 | 50 23 | | | | 45 | 5 5 | 27 27 | | 10 |
| Kerndt, 1901 | 20 ^a 45 ^b 28 ^c | | | 4 4 4 | 20 9 14 | | | 24 29 5 | 60 7 20 | | | 4 7 2 | 7 4 3 |
| McCoy, 1902 | 17 | | | 16 | 93.5 | | | 21 | 60 | 5 | 29.7 | | |
| Good, 1902 (1903) | 100 | | | 100 | 100 | 2 | 2 | 3 | 2.5 | | | | |
| Kennell, 1902 | 14 | | | | | | 1 | | | | | | |
| Lehman, 1902 | 3 | | | | | 27 | 27 | | 26 | | | | |
| Klaus, 1902 | 20 | | | 20 | 100 | | | 71 | 70 | | | | |
| Thom, 1902 | 20 | | | 20 | 100 | | | 10 | 50 | | | | |
| Parlow, 1902 | 24 | | | 20 | 83 | | | 20 | 83 | | | | |
| Adams, 1902 | 27 25 | | | 5 | 18 | | 27 | 5 20 | 54 71 | | | | |
| Pratt, 1902 | 222 1,000 200 | 122 | 55 | 44 100 92 | 20 100 92 | | | | | | | | |
| Gunn, 03 | 167 | | | 24 | 14.3 | | | | | | | | |
| Brown, 1903 | 14 | | | | | | | | | | | | |
| Kramer, 1903 | 9 | | | | | 44 | | | 5 | 55 | | | |
| Kaufman, 1903 | 26 27 | 5 | 19 | 20 | | | | 14 5 | 50 20 | 3 | 12 | 22 | |
| Walker, 1904 | | 24 | | 20 | | | | | | | | | |
| Reicher, 1904 | 27 16 | | | 3 | 11 | 9 | 55 | | | | | | |
| Johnson, 1904 | 18 | 20 | | | | | | | 72 | | 22 | | |
| Brown, 1904 | 26 | | | | | 100 | | | | | | | |
| Whitcomb, 1904 | 27 | | | | | 7 | 25 | | | | | | |
| Lord, 1904 | 24 | | | 2 | 8.3 | | | 15 | 62 | | | | |
| Morgan, 1904 | 5 | | | | | 27 | | | | | | | |
| Burgess, 1904 | 3 | 15 | 50 | | | | | 3 | 100 | | 30 | | |
| Tinsbury, 1904 | 20 | 20 | 100 | | | | | 5 | 25 | | 20 | | |
| Quilley and Barnes, 1904 | 26 | 20 | | | | | | 19 | 73 | | | | |
| Gordon, 1904 | 17 | 4 | 23 | 13 | 76 | | | 7 | | | | | |
| Hodges, 1904 | 24 17 | | | 16 15 | 66 88 | | | | | | | | |

^aSimple cases. ^bComplicated cases. ^cComplicated cases. ^dComplicated cases. ^eComplicated cases. ^fComplicated cases. ^gComplicated cases. ^hComplicated cases. ⁱComplicated cases. ^jComplicated cases. ^kComplicated cases. ^lComplicated cases. ^mComplicated cases. ⁿComplicated cases. ^oComplicated cases. ^pComplicated cases. ^qComplicated cases. ^rComplicated cases. ^sComplicated cases. ^tComplicated cases. ^uComplicated cases. ^vComplicated cases. ^wComplicated cases. ^xComplicated cases. ^yComplicated cases. ^zComplicated cases.

TABLE IX—ULTIMATE RESULTS—CONTINUED

| Author year | Cases | Mortality | | | | | | Cured | | Improved | | With details | |
|------------------------|-------|-------------------|----------|--------------------|----------|-------------------------------|----------|-------|----------|----------|----------|--------------|----------|
| | | Medical treatment | | Surgical treatment | | Medical or surgical treatment | | Cases | Per cent | Cases | Per cent | Cases | Per cent |
| | | Cases | Per cent | Cases | Per cent | Cases | Per cent | | | | | | |
| Lithenthal, 1920 | 3 | | | 1 | 33 | | | 2 | 66 | 2 | 66 | | |
| McCluskey, 1920 | 3 | | | | 33 | | | | 0 | | | | |
| Whittemore, 1921 | 17 | | | 1 | 5 | 1 | 5 | 16 | | | | | |
| Fisher and Cohen, 1931 | 5 | | 0 | 0 | 0 | | | | | | | | |
| Lipsch, 1931 | 35 | | | | | | | | | | | | |
| Feylman | 61 | | | 26 | 42 | | | 37 | 60 | | | | |
| Lockwood, 1931 | 27 | 3 | 11 | 1 | 3 | | | 24 | 88 | 2 | 7 | 3 | 11 |

Pneumothorax: 1 Case operated on.

Excludes cases reported by (Chodura, von Chert, Frank, Grogan, Hawthorn, Lee, Page, Simon and Seamen, Yagor and Warden).

present series it occurred only twice in 54 cases, even though the sputum was repeatedly examined. It should be borne in mind that necrotic processes in the larynx, trachea, bronchi, and pleura, may also produce elastic tissue in the sputum. The sputum on standing separates into three layers, the lower layer pus, the middle layer water and the top layer foamy frothy mucus in which mucopurulent masses are suspended. Soft dough-like masses, usually excessively foul, the so-called Dittich's plugs are often present holding in suspension bacteria, particles of

usually develops in approximately one-half of the patients. Occasionally casts and epithelial debris are found. Diarrhea is more a complication than a symptom and when present must not be considered lightly.

In certain cases about one fourth in my experience, the disease runs a peculiar recurrent course. Drainage does not occur freely from a bronchus or bronchi. The patients usually have an irregular course at the onset. Following the bursting of the abscess, the cavity is apparently emptied and patients begin to improve at once. Their sputum is less each day, their appetites improve, their aches and pains disappear and they feel as though they are about to recover entirely. After a variable period a few days or weeks they begin to complain of

increasing pain in the chest, an evening rise of temperature, perhaps headache and vague joint pains, and their appetites fall off. Chills and sweats may occur often there develops a sense of fullness in the chest around the area involved, cough and dyspnea increase and again the abscess bursts. This type of abscess may run such a recurrent course for many months. Occasionally a small encapsulated empyema produces the same syndrome.

A thorough physical examination and a liberal interpretation of the findings are necessary. Signs of cavitation were elicited in less than one third of our cases. Dullness on percussion and diminished breath sounds over the involved lung is the most constant sign. Large cavities may not be located on examination. On the other hand a small superficial abscess that happens to be empty at the time may give the classical signs of a cavity. It is important to determine by auscultation and percussion, whether the abscess is anterior posterior or lateral. It must be borne in mind that dullness on percussion diminished breath sounds and tactile fremitus may be due to the thickened pleura over the abscess or to empyema encapsulated or free, as often as to consolidation of the lung. Important signs are, diminished excursions of the chest wall over the involved area, and retraction in the interspaces usually present when adhesions are well formed and indicating a superficial abscess or at least extension of the inflam-

matory process. According to Norris and Landis, of 63 patients with abscess of the

especially at the apices, whereas pyogenic abscess rarely involves the apices and more commonly involves the lower lobes, particularly the right lower.

Apart from the history bronchopneumonia may be determined by a shadow of more uniform density and no cavitation.

Bronchiectasis is a diffuse process and the bronchial shadows are more extensive and radiate from the hilus. Moore has pointed out the necessity of having the patient empty the chest before raying, particularly in the cylindrical and sacculated types.

Gangrene casts a denser shadow usually more extensive, with irregular areas of varying density producing a coarse mottling effect.

In malignancy roentgenograms vary depending on whether the lesion is primary in the hilus, is lobar or miliary in type or is a metastatic nodular or miliary type. Carman in exhaustive articles on pulmonary malignancy has pointed out that the diagnosis of pulmonary malignancy is nearly always possible from the plates, but that in certain cases, the patient's history and physical examination must be considered. In primary

DIAGNOSIS

Diagnosis depends on the history, the roentgen-ray findings, examination of the sputum and the general physical examination.

An accurate history is essential, and on this alone the majority of lung abscesses may be diagnosed. The affection is three times as

that predisposing causes such as exposure, excessive use of tobacco, alcohol, fatigue, and so forth may play an important part. The location and extent of the lesion require a careful physical examination, but more especially a thorough roentgenologic examination. Fluoroscopic examination and stereoscopic plates are essential.

The fluoroscope serves to rule out the presence of free or encapsulated fluid in the pleural cavity, the position and degree of movement of the diaphragm, the position of the heart and mediastinum, and affections of the aorta and mediastinum. Stereoscopic plates determine the location of the abscess, its extent, cavitation, the surrounding fibrosis or calcification, its position relative to the chest wall, whether single or multiple, and the presence of active or latent tuberculosis, carcinoma, syphilis, cysts, bronchiectasis, encapsulated empyema, massive gangrene, and foreign bodies. An empty cavity appears as a lighter shadow surrounded by a relatively dense shadow varying with the degree of inflammatory reaction, fibrosis, or calcification. The shadow is greater than the extent of actual necrosis. A fluid level in the abscess shows a horizontal line and the level shifts with the position of the patient. An air bubble may be present. Tuberculosis, bronchiectasis, and bronchopneumonia may be easily confused with abscess (Figs. 1 and 2).

In tuberculosis there is generally a characteristic mottling elsewhere in the lung and

the growth. It is different from that due to inflammatory reaction. Smaller shadows of local metastasis are usually present. Metastatic malignancy of the nodular type might occasionally be mistaken for multiple abscesses. The shadows are denser, more widely scattered, the extension is peripheral, and usually involves both lungs. The apices are rarely involved.

Sarcoma presents a uniformly dense shadow, more regular and sharply defined than abscess.

Echinococcus cysts or dermoids present

They may be in upper lobes particu

larly but the apices are not usually involved. It may be difficult to differentiate from fibroid phthisis.

DIFFERENTIAL DIAGNOSIS

The following must be ruled out: Lung abscess due to tuberculosis, diffuse gangrene, bronchiectasis, empyema with a bronchial fistula, encapsulated empyema, interlobar empyema, unresolved pneumonia, purulent

the parietal and visceral pleurae. Occasionally a serous pleuritis develops which may later become purulent (empyema). The presence of pleuritic adhesions varies. Picot in 149 pneumotomies, found them in 53 per cent. Tuffier in 87 per cent. In 5 only of 35 cases from the Massachusetts General Hospital (Lord) were the lungs free. McRae, in 75 collected cases, reports adhesions present in 85 per cent of acute cases and in 81.3 per cent of all cases.

Occasionally localized bronchiectasis surrounds the abscess, and may extend to the hilus. Conditions as follows may develop: arthritis, endocarditis, pericarditis, subphrenic abscess, mediastinitis, brain abscess, septice-mia, pyæmia, amyloid disease, diarrhoea gangrenæ, and hæmorrhage. Hæmorrhage is a dangerous complication. Lord had one death in 50 patients. Patschke, Kraus, Garré, Tuffier, Westbrook and Lockwood each had a death from hæmorrhage (a small pulmonary arterial aneurism or artery rupturing in the cavity). Repeated severe hæmorrhage greatly reducing the patient's resistance and ability to combat the disease is a serious complication.

Cerebral abscess is a grave complication. Martius, in 1891, collected 23 cases at necropsy. Cameron, in 1907, found 17 cases. Hedblom found 2 and Fabricant 1. Hamman believes that brain abscess is a common sequela. We have recently observed 3 patients with brain abscess: 1 recovered and 2 died. These cerebral lesions are due to detachment of infected emboli from thrombi in the pulmonary veins; they are more often multiple than single and produce a syndrome of Jacksonian epilepsy. They may produce hemiplegia or monoplegia, loss of vision, persistent headache, psychosis and ultimate death. The left side of the brain is most often affected.

Diarrhoea is a complication or perhaps more properly a late symptom of a systemic involvement and calls for urgent investigation. Proctoscopic examination should be made and every means taken to determine the cause. If diarrhoea persists and the patient is not holding his own, the abscess should be operated on. Unfortunately it is very often

the aorta. The sputum should be repeatedly examined for the bacilli of tuberculosis. Apart from the history one must rely mainly on the roentgen-ray to differentiate these conditions.

Needling of a pulmonary abscess as a diagnostic method is mentioned only to be condemned. Lord points out: "Exploratory puncture is an unjustifiable method that can not be too strongly condemned." Murphy, Lillenthal, and Eisendrath agree. Sudden death due to pleural syncope or to cerebral emboli may occur. Empyema results in a certain percentage. Troublesome superficial abscess may develop. A blood vessel may be injured and bleed freely.

It has been suggested that the bronchoscope should be used as an aid to diagnosis. Personally I can see no reason for submitting a patient to such examination unless there is a possibility of the patient having aspirated something. I would advise against its use in extensive abscess where flooding of the same bronchial tree or the opposite with foul pus may result. In any case it is extremely rare that a definite cavity can be visualized through a bronchoscope. A bronchus leading from the cavity and discharging pus is usually all that can be seen.

COMPLICATIONS

The complications of pulmonary abscess vary particularly with the etiology and may be more serious than the disease itself. With practically all superficial abscesses there is an adhesive pleuritis with a matting together of

a late evidence of pyæmia and even though the abscess may clear up the patient dies of the diarrhoea and general weakness. Necropsy may reveal minute ulcerations in the intestine but often only an inflammatory and irritative congestion.

PROGNOSIS

The prognosis depends on the cause, the extent of the lesion, the general resistance of the patient and the treatment. The extreme toxicity of emulsified tissue in pulmonary abscesses and even of normal lung tissue has been shown experimentally (129 194). The prognosis is more favorable in abscesses following lobar pneumonia and trauma.

One of the most important factors in the prognosis of abscesses is the location of the abscess. Abscesses of the corn and so forth. Metallic bodies particularly seem to have some inherent property of producing gangrenous abscesses. Abscesses due to bronchopneumonia are so often multiple that the prognosis is not favorable. If due to direct extension from the liver or subdiaphragmatic space the prognosis is fair whereas it is bad if the extension has been from the mediastinum. If they are due to metastases from distant foci, the prognosis is bad. It is very much better in acute than in chronic abscess and in single than in multiple. Apical abscesses are more favorable than those located in the lower or middle lobes because the former drain more easily into the bronchus. It is, of course, better in multiple abscesses confined to one lobe or lung than in those involving both lungs. The prognosis must be guarded when hæmorrhage, even if only a trace, has occurred.

Less than one-fourth of the acute single abscesses will require surgery. Early operation for acute multiple abscesses is not warranted. Possibly one-third of the chronic single abscesses and one-half of the chronic multiple abscesses confined to one lobe may require operation. It is rare that a patient with either acute or chronic multiple abscesses involving both lungs is in a condition to stand operative treatment. In 3 such cases I have been obliged to operate because the main abscess attained such a size that the

patient were in extremis. Two survived but were cured only partially. Perhaps early pneumothorax on the most involved side would give a better chance for relief in these bilateral cases.

The small encapsulated abscesses that are not connected with a bronchus should be carefully watched and, if the patient continues to show signs of absorption either pneumothorax or operation should be undertaken. Such abscesses act as dangerous foci of infection and the gravest sequelæ may follow absorption of pus from them. The prognosis should be guarded. All abscesses, due to a foreign body in the parenchyma and those to a foreign body in a bronchus that cannot be removed through a bronchoscope, should be operated on.

MEDICAL TREATMENT

Mix says "There is no medical treatment for pulmonary abscess." Goldberg and Bessenthal say "The treatment of acute lung

abscesses is by some surgical procedure.

Robinson says "I early learned the necessity for expectant treatment in these cases." This

say through a bronchus medical treatment should be thoroughly tried. Before any operative

nourishing foods, such as milk, eggs, gelatin, nutmegs, chocolate, cocoa, and so forth and

tion 10 mgm. 100 cent glucose in water should be sipped every 2 hours during the day. Postural drainage must be encouraged. Persevere with such patients until some position is found in which

free bronchial drainage is established. Once such a position is found carefully explain to the patient the necessity of keeping the abscess free of pus and as often as his general condition will permit have him assume the posture. Particularly the last thing at night

medical treatment for this condition.

Inhalations should be employed not so much for their curative effect *per se* as to offset the odor thereby improving the patient's mental outlook, and his desire for food. Stimulant cough mixtures may be taken. If there has been a hemorrhage the patient's bleeding and coagulation times should be ascertained if they are delayed calcium chloride should be given intravenously.

The use of the bronchoscope has been advised by Meyer, Lynch, Jackson, Mayer, Mosny and St. Geron, Yankauer and others. It has been employed to irrigate the cavity

method of treatment. Certainly every effort should be made to remove foreign bodies through it and many abscesses heal after the foreign body has been removed. It is possible that dilatation of the main discharging bronchus by establishing free drainage would increase the percentage of medical cures. I have always feared the possibility of infecting the healthy lung during manipulations with the bronchoscope and have preferred to avoid every possible measure that might allow the patient to aspirate pus into the healthy lung.

A four hourly temperature chart should be kept and the patient watched carefully from day to day. So long as his general condition improves, nothing further should be done. If after a fair trial of this method, the temperature is still maintained, and the patient is not eating better, is not sleeping better, is having fever, or is not gaining in weight, and the amount of sputum persists, other measures should be considered.

Artificial pneumothorax should be employed in certain types of abscess. Tewksbury, Goldberg and Biesenthal, Basin and others report favorable results. I must confess that I have had little success with it. However with a patient that is having severe hemorrhage from a lung abscess, pneumothorax should be resorted to at once. If the abscess is small and well localized I would employ pneumothorax. If on the other hand the abscess is large or multiple and the patient is producing a considerable quantity of pus, unless the condition is long standing and the lung over a wide area is probably firmly adherent to the chest wall pneumothorax may do harm. When there is extensive necrosis of the abscess, the adhesions may tear away from the chest wall, pus will escape into the pleural cavity and empyema result. In other cases it is conceivable that the collapse of the lung in a patient already emaciated and with little resistance might be attended with danger from syncope and from the exhaustion of the irritative cough that sometimes follows pneumothorax. In cases of small encapsulated abscesses without bronchial connection pneumothorax should certainly be tried before surgery is instituted. In any case so long as the patient is not holding his own or improving after the lung has been collapsed surgery should be undertaken.

INDICATIONS FOR OPERATION

1. Operations should be undertaken for all patients who after a thorough trial of medical treatment are no longer improving or holding their own.

2. Early operation is advisable in all cases of fair-sized patent cavities surrounded by markedly fibrosed or calcareous walls.

3. Pneumothorax may be advisable in all cases of small, completely encapsulated abscesses not connected with a bronchus. If pneumothorax does not improve the condition operation should be undertaken early.

4. After thorough medical treatment to put the patient in the best possible condition for operation surgery should be resorted to in all cases in which an abscess surrounds a foreign body imbedded in the parenchyma,

or in which a foreign body in a bronchus cannot be removed through the bronchoscope.

5. Early operation is advisable for patients with very large abscesses even though the patient's general condition is fairly good since there is a possibility that they will be drowned in their sputum.

6. There is a small percentage of patients who have developed very large abscesses and whose general condition is very bad in whom drainage is urgently necessary regardless of the great risk, because they produce such quantities of pus that they are in danger of drowning themselves.

Various methods have been employed for securing drainage. The earlier surgeons resorted to intercostal stab, cautery puncture, or trocar drainage through an interspace. Because they were not always successful in reaching the cavity through the interspace resection of the overlying ribs was resorted to. The necessity of having firm adhesions over the abscess has been insisted on before attempting to drain the abscess. If adhesions were not present irritating pastes, gauze packs and suturing of the parietal pleura to the visceral have been resorted to in order to establish adhesions. In this connection if any measure is to be employed to establish adhesions, I prefer a gauze pack. After freeing the parietal pleura sufficiently the pack is placed and the skin flaps sutured over the gauze and left in place for from 4 to 8 days. There are certain objections to the suture method.

Very often the patient coughs, the needle tears a little in the parietal pleura and the lung collapses. It is an easy matter to get the lung into expansion again but occasionally

that a more deliberate and extensive operation than the ordinary resection of the overlying chest wall and drainage gives a better ultimate result with scarcely any additional immediate risk to the patient.

With all our methods of localizing and outlining abscesses or abscesses in the lungs, I early realized that at operation hidden pockets or adjoining but distinct abscesses were often overlooked and only revealed at necropsy. While the stereoscopic plates and the fluor-

ographic device is highly unsatisfactory and unreliable. It is many years now since physicians became convinced that in abdominal abscesses exploratory laparotomy was less dangerous than exploratory puncture. All physicians who have had experience with a number of thoracic cases must feel that the same is true in indeterminate thoracic lesions. I have not employed the needle for diagnostic purposes during the past 4 years except as a means of determining the nature of pleural collections.

Because of the uncertainty of localization of an abscess in the lung, because with the earlier operation through the adherent area of the abscess I had not drained all pockets and because thoracotomy under local anesthesia is so safe a procedure, I prefer to open the thorax widely thoroughly palpate the lung

empyema must have resulted in most of these cases. Distressing even almost fatal, empyema has occurred. On the whole, suture is unnecessary and prolongs the operation needlessly unless there is some urgent reason for opening the abscess at the first operation. If the patient is acutely ill, and drainage is urgent, it is much safer to drain an abscess



Fig. 1 (129964) Multiple cavities



Fig. 2 (12777) Fixed in the right thorax bilateral tuberculous

advised the same procedure, that is, while

ing the incision posteriorly from the nipple

surgery the operation which I have employed for the last 3 years is as follows

After the location of the abscess has been determined as accurately as possible, whether anterior posterior lateral, high or low peripheral or deep the incision is planned so that the skin flaps completely expose the abscess and yet can readily be employed to close it ultimately. Beck showed the value of flaps in the closure of cavities following abscesses and empyema. For reasons that I have repeatedly pointed out in my opinion, para airtal anesthesia associated if necessary with gas and oxygen, is the anesthetic of choice in all thoracic surgery. The incision is made if possible in the first interspace below or above the adhesions or abscess. The intercostal incisions allowing easiest access to abscesses are (1) the third or fourth interspace for abscesses in the anterior portion of the upper lobe, (2) the fifth interspace carry

ing the incision posteriorly from the nipple. It is usually possible to obtain sufficient room between the vertebrae and the scapula. If necessary the scapula can easily be winged outward or inward without any permanent disability. If the muscles are properly sectioned and transplanted or repaired and if fixation is avoided by moving the arm and shoulder from the first. The typical intercostal thoracotomy is employed and the interspace opened sufficiently wide freely to admit the operator's hand to search for adhesions. If present they lead to the main abscess. The hand is swept over the lung, feeling for areas of hardening or softening. The hilar glands and the mediastinum are palpated. The experienced operator in a moment will detect changes in the consistency of the lung. When the extent of involvement is determined the

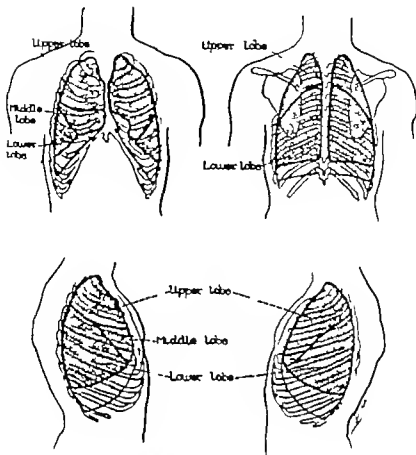


Fig. 3. Diagram of lungs showing the position of fissures in relation to the chest wall.

lung is brought up to the chest wall so that the involved area will be most easily exposed. The site of this is mapped out on the chest wall and flaps fashioned to expose that portion. After a sufficient amount of the chest wall has been removed the lung is

usually is (either the pectorals, latissimus dorsi or serratus magnus as a rule) a second row of sutures approximates the muscles to the visceral pleura over the first layer. A third row sutures the skin to the visceral pleura so as to overlay the second row and doubly overlay the first row (Figs. 5, 6, 7 and 8). If the abscess is very large and the patient has been producing a large amount of sputum by coughing, it may be wise to rub vaseline into the suture area and open the abscess at once. I have had one patient drown in his own sputum after the first stage and before the abscess was opened.

pleura, the parietal pleura and the intercostal muscles. A shoemaker stitch is employed and the first row of sutures should so closely appose the parietal pleura to the visceral that the pleural cavity is entirely shut off. If there is sufficient muscle available and there

In most cases it is wiser to wait 3 to 4 days until granulations have formed. No anesthetic is necessary to open the abscess. The entire

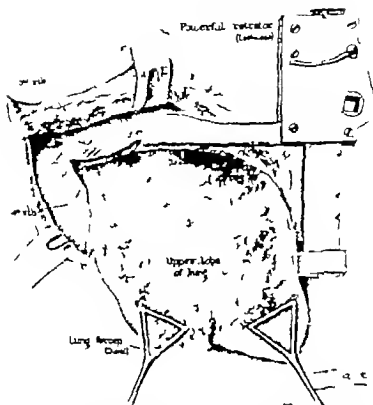


FIG. 4. Exposure of the upper lobe through an intercostal incision

top of the abscess is excised with a scalpel the cautery is not employed until the cavity is thoroughly exposed all debris removed and all tags cut away and ramifications of the abscess opened. The cautery gives a false security. Fair-sized vessels often are found in the walls of abscesses. The cautery sears them over temporarily and in the presence of infection or necrosis they may later open and bleed. It is safer thoroughly to expose the abscess with a knife or scissors, employ hot packs to control the bleeding and after thoroughly cleaning out the abscess, tie off the larger vessels and if necessary apply the cautery here and there to control oozing. Crush all bronchi and tie with catgut. It may be advisable at the first operation to dissect out, invert, and suture over larger bronchi (Fig. 9). After the cavity is thoroughly dry pack it with gauze wrung out of glycerin and saline (Sodium chloride 5 per cent sodium

chlorate 0.5 per cent glycerin). This is a soft,

lung. After 4 days the pack is removed all tags are snipped away with scissors and a similar dressing carefully applied. Daily dressings are discouraged and every effort is made to avoid reinfection or additional infection. At the earliest possible moment skin flaps are brought in to overlay and close the cavity. Usually by the tenth day this is possible. If all bronchi are closed the flaps will adhere more readily. Smaller bronchi may be cauterized within their lumen to the depth of 1 to 2 centimeters and the flaps applied directly over them. Even in the presence of considerable suppuration, flaps readily adhere and

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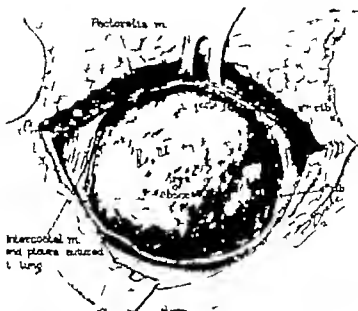


Fig. 5. Rupture of the pirnital ph. m. and intercostal structures to the lung

dressing is left in position for 4 days, by which time the flaps are usually securely attached. By this method the danger of secondary hemorrhage is reduced, the tendency to re-infection is lessened, and the repeated dressings and the long drawn-out convalescence of the old operation are avoided.

Whether the abscess is drained through a small opening in the adherent area or is widely opened as I have suggested irrigation of the cavity should never be practiced. Violent

abscesses that have been opened by caustic puncture or blunt dissection, a few drops of a per cent formaldehyde in glycerin may be instilled through a catheter. It is hygroscopic, mildly antiseptic, and deodorant.

Resection *en masse* is possible in many small completely encapsulated abscesses. It is the operation of choice in a small abscess

bronchus, and complete resection is not advisable.

Tuffier practiced an operation whereby the parietal pleura was freely separated from the chest wall and fat transplanted over it to exert sufficient pressure to collapse the abscess. Archibald has employed this method in apical tuberculous cavities. I believe this operation should be reserved for the latter type of case.

POSTOPERATIVE TREATMENT

Treatment after operation is important

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sputum many patients do this unconsciously. As soon as the temperature falls to normal, the patient should be up and around and should do light settling-up exercises and every possible means should be employed to get him back to health. If bronchial fistulae have persisted, their early operative closure should not be attempted. It must be determined by the roentgen-ray and careful examination that there is no hidden pocket or area of necrosis left to maintain the patency of the bronchus and then, apart from cauterization, no active

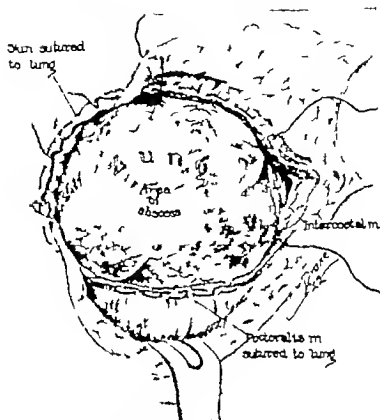


Fig. 6 Three rows of suture on the left lung: first, intercostal structures, second, pectoral muscles and third, skin.

measures or closure should be thought of until the patient is in good health. Conditions in the chest, such as bronchial fistulae, small intrapulmonary cavities or small empyemal cavities, should not be tampered with, unless some good purpose is to be accomplished. Cerebral lesions and sudden death occur too often following such palliative measures. Plan, if possible, to do all that is necessary in one operation. For the first year or two patients should be warned to avoid exposure as they have a greater tendency to colds and pneumonia.

Codoin or heroin in small doses may be necessary to control the troublesome cough that is sometimes more frequent for the first few days after operation. Heroin should be cautiously used however. The patient in his exhausted condition may go to sleep and sleep for 11, 12 or 13 hours. If the cough has

been completely controlled a large quantity of pus may collect and in a violent coughing spell the patient may be choked with pus and aspirate large quantities into all parts of his lungs and even drown himself. Case 2 illustrates the danger of this treatment.

POSTOPERATIVE SEQUELÆ

Emphysema, sepsis, septicæmia, empyema, grave pneumonia, cerebral embolism and severe hemorrhage may follow operation. Emphysema is not a common sequela, but it does occur. Its treatment is expectant. Sepsis as a rule is confined to the adjacent skin edges and is not serious, unless septicæmia develops. *Staphylococcus pyogenes albus* or *staphylococcus pyogenes aureus* particularly and occasionally the *streptococcus hæmolyticus* are found in the blood of most patients who develop septicæmia from abscess of the

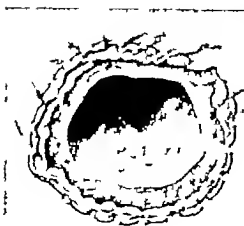


Fig. 7. Cavity of abscess and skin suture closing the first 12 hours of suture.

lung. Empyema is a serious sequelae and must be drained or dealt with by aspiration regardless of the presence of the abscess. Empyema on the opposite side is a very grave complication and if possible, should be dealt with by repeated aspiration. Pneumonia following operation for lung abscess is more often bronchopneumonia, but may be lobar. It is usually severe and the majority of deaths following operation apart from those due to the shock of the operation itself are due to pneumonia. Cerebral embolism unfortunately occurs from time to time and follows the same course as described under complications. Severe hemorrhage occurs in a certain percentage of postoperative cases. Of 74 patients operated on by Tuffier 4 bled to death. Patachke Kraus, Garré Green, and Lockwood have all reported deaths from postoperative hemorrhage. I have not, however had a death since I adopted the precaution of encircling the base of the



Fig. 9. Steps in the closure of bronchial fistula.

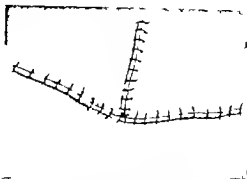


Fig. 8. Flap imbedded in the abscess cavity.

abscess with purse-string sutures of twenty day catgut and tying all vessels. Small pulmonary arterial aneurisms occur in the processes of necrosis and cavitation, and care must be taken to ligate behind the cavity.

MORTALITY AND RESULTS OF TREATMENT

The mortality varies with the age of the patient, the cause of the disease, the extent of the lesion, the patient's previous general condition, and the treatment and general care (Table IX).

The death rate in children varies from 21 per cent as stated by Bassin, in 19 children, to 100 per cent as quoted by Baron in 7 Children and adults past middle life do not tolerate lung abscess well. Apparently the surgical mortality in children has been approximately 60 per cent and the medical mortality 85 per cent. The mortality rate in

multiple those that become chronic, and those that demand surgery will raise the mortality to nearer 40 per cent.

In adults the death rate after medical treatment has averaged 58 per cent, after surgical treatment 35 per cent and after medical treatment and pneumothorax 16 per cent. These percentages, however cannot be translated literally to represent the true death rate. A careful study of the reported cases shows a wide variation in the selection of patients for treatment by medical régime, pneumothorax, and surgery.



Fig. 4 (A3035) Abscess of the right upper lobe of the lung.



Fig. 5 (A3035) Healed abscess, 3 months after pneumothorax in Figure 4 was taken.

Balboni reported two cures in 4 cases. Tewksbury reported six cures, two improvements, and two deaths in 10 cases following pneumothorax and Goldberg and Biesenthal reported twelve cures, two improvements and two deaths in 16 cases following pneumothorax.

On the other hand Picot reported only 10 per cent of 133 patients cured with medical treatment. McKechnie reported one cure, and Rendleman one. Wealer and Schwarz reported 11 cures, 10 improvements, and 10 deaths in 31 cases.

100 patients get well without operation and of 21 3 recover spontaneously. Kraus and Strauss reported spontaneous cures. Of 20 patients with abscesses due to lobar pneumonia seen by Laennec, 18 recovered after medical treatment. His editors, however, doubted the diagnosis in certain cases. McKinney reported 1 of 3 patients spontaneously cured. Holmes reported 1 case of his own of multiple abscesses in which the patient

recovered on medical treatment. He collected 3 other such cases. Wealer reported 6 of 8 patients with abscesses cured. The duration of the abscess was not less than 3 weeks and not more than 6 months. Wasner had six medical cures. Yankauer reported three cures in 15 cases with bronchoscopic treatment and Lynch, Mayer, Mosny and St. Glrons, report cures by such treatment.

Of 1117 patients with abscess of the lung 518 (46 per cent) are reported cured, 161 (14 per cent) improved, 17 (2 per cent) improved but with a persisting sinus, 48 (3 per cent) not improved and 373 (33 per cent) dead. The average medical mortality was 58.6 per cent. The average surgical mortality was 34.6 per cent.

These data, while interesting, distort the facts. Forty-six per cent of patients cured is higher than the average has been in the hands of careful observers who have a thorough follow-up system. Lord states that

Includes cases reported by Chabrous, von Ehrlich, Frank, Greenberg, Horowitz, Katz, Papan, Simon and Jeremy, Vargas and W. B. Harris.



Fig. 1 (13063) Petrol granules above of the right upper lobe.

only 16 per cent are cured by surgery. I believe that many reported cures in the collected cases would have been more properly listed as improved. Again 2 per cent improved but with fistula; 12 per cent of the whole, but 11 per cent of those treated surgically.

In considering the mortality and results of treatment I wish to direct attention to this group of 54 patients and particularly to the 27 treated medically. These cases were on the whole long standing and serious. Forty-nine were chronic; the average duration of

bronchiectasis in 1 the patient attempted to carry out the treatment at home. Of the 27 patients treated surgically 13 are cured, 3 improved with fistula and 11 are dead.

An analysis of the 11 deaths shows the extent of the disease before coming for treatment and the impossibility of averting death in a certain percentage of late neglected cases.

The results are certainly better when the patients are hospitalized and under the constant care of a close observer. If medical treatment alone or medical treatment with pneumothorax is instituted the patient must be carefully watched every day for signs of increasing toxic absorption. The signal must not be missed nor the opportune moment for surgery. The greatest danger is

that reason, once the condition has been diagnosed the patient should be under the care of the surgeon as well as under the constant attention of the internist.

ILLUSTRATIVE CASES

rocytes to 3,220,000 and the leucocytes increased to 14,800. Examination of the sputum did not reveal tubercle bacilli. Roentgenograms showed an abscess of the right lower lobe. A slight retraction over the third space in front caused erroneous breathing, cracked-pot sound and whispered pectoriloquy over the second and third inter-spaces in the middle clia axillary line were noted. A diagnosis of abscess in the upper right lobe of the lung. Forty days after the abscess developed, the patient was placed on medical

dead. Of the 5 patients not improved in 1 the diagnosis is uncertain. It may be a sarcoma; the patient is still under observation. In 1 the patient has multiple abscesses, is extremely ignorant, and refused to stay for treatment. In 3 there is extensive associated



Fig. 13 (A360675) Abscess of the left upper lobe

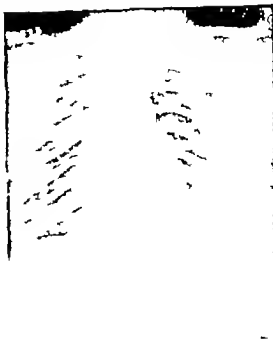


Fig. 14 (A360675) Healed abscess 37 days after roentgenogram in Figure 13 taken

able to work and be around. In March 1920 he had a bad cold. His cough increased, he lost appetite and strength. He began to have a daily temperature of 99° to 101° with occasional chills. About the third week the sputum increased in amount and became so foul that the family could not stay in the room with him. He coughed up half a cupful at a time and large quantities in 24 hours. Posture did

not improve. His weight had fallen to 120 g. rectum operation was undertaken.

Paravertebral anesthesia was employed. The thorax was opened through the fourth interspace. The upper and middle lobes were firmly adherent to the chest wall.

crystal nails. He was dyspnoeic and had pain continually over the right chest anteriorly. His haemoglobin was 6 g. per cent.

and until until 1920 on the right side. He was not and more bronchitis and

instructed to give one-twelfth of a grain of heroin at intervals of one and one-half hours until the cough was under control. After three one-twelfth grain doses over an interval of 6 hours had been given, the patient went to sleep at 11 p.m. and slept until 10 a.m. without coughing. He had been in the habit of coughing violently at least every 20 to 30

minutes at night. At 10 a.m. he awakened, complained of pain over his chest, moved a little and

had aspirated a large quantity of pus and was

both lungs were full of thick, foul pus containing much epithelial debris, shreds of lung tissue and calcareous particles.

Three mistakes had been made in the treatment of this patient.

1 Although he was extremely ill and the area of involvement was extensive, he improved remarkably in 4 days of active medical treatment. He should not have been operated on until the maximal improvement had been reached.

2 If patients have extensive cavities

operative interference with the pleura, troublesome cough often persists for a day or two. For that reason the cavity should be opened at the first operation in such cases.

3 While steps must at times be taken to control distressing cough in patients already greatly weakened, under no conditions should narcotics be administered to the point of pro-

was pale and emaciated.

Examination revealed an enormous abscess of the lung involving the upper right lobe (Fig. 13). The temperature was 103°. The leucocytes numbered 15,400. The pulse-rate varied from 112 to 120.

entire upper lobe. The cavity was filled with a cubic centimeters of foul-smelling, reddish brown sputum a day. Forced feeding was instituted and

occasions in variable amounts within the next 10 days. After the second hemorrhage an attempt was made to collapse the lung with oxygen, but the patient was so acutely ill that he could not be moved in order to have a roentgenogram made for the determination of the extent of collapse. His condition was

the lung collapsed almost entirely (Fig. 4).

Three years earlier I would have considered this type of case urgently surgical. However, a patient with such an extensive abscess and so acutely ill belongs to the group in which the mortality rate following operation is high. Other cases similar to this have convinced me that well-controlled medical treatment should be tried out before an operation is undertaken. An interesting feature of this case is the development of a large pyogenic abscess with out any demonstrable etiology.

CONCLUSIONS

1 Contrary to the opinion of the early writers that abscess of the lung is a common sequela of lobar pneumonia, a survey of the reported cases of the last century would lead us to conclude that it is a rare sequela.

2 By lowering the resistance in the lung through the pneumonias (lobar broncho, and influenza) predispose the patient to the development of lung abscess following pyogenic infection.

3 Lung abscess occurs more often between the years of 25 and 40. It is three times as common in males as females; it occurs three times as often on the right side as on the left, and about twice as often in the lower lobe as in the upper. Three out of four are peripheral and involve the pleura, and one out of four is multiple.

4 It must be borne in mind that recently

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MALIGNANT PAPILLOMA OF THE KIDNEY

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MALIGNANT papilloma of the kidney seems to be a very rare condition. The first case reported in this country was by A. O. J. Kelley (1) in 1900. Since that time there have been but 18 cases reported in America while the foreign literature contains a total of 38 cases. The American cases have been reported by Babcock (2) Watson and Cunningham (3) Lower (4) E. S. Judd (6) Hyman and Beer (5) C. H. Mayo (7) Stevens (8) and Goldstein (9) two cases by Kretschmer (10) three by Braasch (12) one each by Miller and Herbst (11) and McCown (13). There are two unreported cases by Burford (14) of St. Louis, and Parmenter (14) of Buffalo.

McCown in reporting his case made a very thorough study of the literature. He presents abstracts of 46 cases including the 38 foreign cases and his own. The total number of cases on record up to date is 56. To this number the writer adds below the fifty-seventh case. McCown's very thorough search of the literature and the report of his own case are to be found in the *Journal of the American Medical Association*.

From an analysis of the cases thus far recorded the incidence of papillary epithelioma is more common in males than females in the proportion of two to one. Ages vary the youngest being a young boy and the oldest a woman of 86. The etiology is unknown. Some authors are inclined to ascribe as the cause, inflammation others stone. The tumors vary in size from multiple small, isolated bud like growths to a single, large cauliflower mass filling the renal pelvis and producing as it grows destruction of the kidney parenchyma.

The tumor may start in the kidney and remain localized but the striking tendency is to involve secondarily either by direct extension or by implantation, the lower urinary tract. Of the cases reported 25 showed involvement of the ureter while in

18 the tumor had invaded the kidney ureter and the bladder. The symptoms vary considerably with the size of the tumor and the associated pathology. Hematuria is the most constant sign. It is usually intermittent in character and may vary in severity from a slight cloudiness to a copious hemorrhage. Pain is more or less inconstant but radiates from the kidney down the loin.

If the symptoms are not interrupted by surgical treatment, they may extend over quite a period of years. In the case reported by the writer which was inoperable on account of the age and feebleness of the woman who was 82 the symptoms persisted for 6 years. Usually however termination is seen relatively early. In adults especially all cases showing intermittent hematuria and pain in the kidney region should suggest this condition. It is quite possible that some of the cases diagnosed as essential hematuria may be of this type when run down to their last analysis. Certainly this condition should be suspected if the roentgenograms are negative for stone, if there are colic like attacks of pain radiating along the course of the ureters, if there is a diminished or absent function of the suspected kidney and if there is a palpable mass in the loin. In addition to this if cystoscopy reveals a papilloma of the bladder or the ureteral orifice, and the pyelogram reveals a filling defect in the pelvis of the kidney and the urine contains unidentified epithelial cells the presence of a papillomatous tumor is well nigh certain.

Judd regards the papillary structure as proliferating epithelium of the renal pelvis. The exact nature of the tumor seems to be based on the appearance of the epithelial cells within the connective tissue beneath the tumor. Papillary tumors of the pelvis of the kidney are usually if not always, multiple. These neoplasms are divided by Judd into three classes (1) the simple papillomata which show throughout their entire development and evolution the char-



Specimen showing right kidney and ureter

characteristics of all such tumors (2) the cystic papillomata which almost immediately show the characteristics of malignancy, and (3) those tumors which apparently change from a supposedly benign to a malignant growth. For practical purposes it would seem best to credit malignant tendencies to all of these papillomata and treat them in a radical manner.

From the standpoint of treatment the cases of renal papilloma may be divided into two classes—those with and those without involvement of the bladder. In all cases nothing short of complete removal of the affected kidney and as much of the ureter as possible should be done. If there should be implantation in the bladder fulguration may be done later. If on the other hand fulguration should be done on bladder papillomata and the trouble higher up in the ureter or the kidney is overlooked it is easily seen that nothing is accomplished and that endless trouble may ensue.

The following case brings the total reported cases up to 57.

Mrs. C. K., age 32, the mother of six children (two, anemic and feeble). She has never been robust but has suffered from myxedema more or less all her life. She has a long history of nephro-

ptosis of the right kidney. About 4 years ago the writer was called, the condition was explained, and he was asked to push up the kidney in place as it had come down by reason of the journey from her home in Brooklyn to Atlantic City. She stated that for 2 or more years she had suffered from intermittent hematuria and that her Brooklyn physician relieved her discomfort when the kidney came down by replacing it. On attempting to carry out her wishes, I discovered a mass in the right loin about the size of a large grape fruit apparently elongated at both ends. It was more or less movable and was pushed up to a higher level under the liver. The next day she began to bleed and this continued for ten days. My impression was that the mass was a hydrocephalon.

The patient's heart, lungs, and circulation were normal, blood pressure 110-85. She ate quite a bit and required suggestions of cytotocopy and X-ray to the end. She was under my observation most of the time for a period of four years. Bleeding would sometimes last for several weeks at a time and then cease. During the intermissions she would be able to be up and about the house. The last year of her life however was spent practically in bed. It seemed rather unusual that during the latter months of her life the attacks of bleeding were less frequent nor did they last so long when they did occur. During my observation of her case there were two or three distinct attacks of urteral pain. One day she passed an unusually large amount of urine and on examination the mass in the loin had disappeared. It did not return. There is no doubt but that this mass was a hydrocephalon.

From time to time there were attacks of gastric and intestinal trouble and an occasional one of temper were a degree or two. The patient gradually failed and died on November 8, 1910.

Autopsy. Only abdominal examination permitted. The stomach was normal, the gall bladder thickened and distended showing the presence of an old bile calculus, but there is no stones in it. There were old adhesions about the pyloric end of the stomach, the duodenum and gall bladder. There were no enlarged glands and no involvement of the intestines. The pelvic organs showed no gross pathology but were trophic. The left kidney and ureter were normal. The bladder was normal except for some small gray, lumpy concretions. There was no evidence of cystitis or of papillomata or epitheliomas. The right kidney was but slightly larger than normal. The pelvis was undistended and the ureter blank in color and about four times its normal size. On splitting the kidney and ureter upon the pelvis of the kidney as well as the ureter were smooth and showed no gross lesions, but the pericardium of the pyramids of Malpighi were found beautiful little tufted cauliflower masses. In the pelvis was a organized blood clot.

This kidney was submitted to Dr. John A. Kolmer, professor of pathology at the University of Pennsylvania, who has given the following

report The histological examination of the kidney shows the presence of a papilloma in the

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reason gives a good prognosis on account of its slow growth. In general the kidney shows chronic interstitial and glomerular nephritis."

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PARABIOSIS AND ORGAN TRANSPLANTATION¹

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THE problems concerned in tissue and organ transplantation have interested workers both in the laboratory and in the operating room. In the earlier period failures were encountered as a result of improper technique, lack of asepsis, etc. but all these factors have now been eliminated and still there is the insurmountable obstacle presented by the absorption of the graft. As a matter of fact where the technique is flawless and the asepsis beyond question there have been successful autotransplants of entire organs (1) but as soon as homotransplants were attempted with the same skill and care, the result was almost invariably unsuccessful (2). Knauser reports successes in his ovarian transplants heterotransplants have always failed to grow. These latter cases were characterized by the greater rapidity and intensity with which the graft was either absorbed or thrown off as a necrotic mass (3). All results so far lead to the conclusion that the graft acts as any foreign body does and meets with the same treatment from the host that any foreign invading body receives. The consensus of opinion is that chemicobio-

front investigators of this branch of surgery

Differences in the "chemistry" of individuals are not so marked in the lower animals as in the higher. In fact, in those animals characterized by biologists as low in the scale of evolution, homologous transplantation is almost invariably successful, and even heterologous (4) grafts are not unusual. In plant life, this fact is well illustrated by the seedless orange—a sport propagated wholly by grafting. These chemical differences can be greatly intensified by injecting tissue emulsions prior to the actual transplanting (5).

The extremely intimate connection between the two individuals of a parabiotic pair is very clearly shown by the work of those who have studied this subject. Morpurgo (6) succeeded in keeping alive a pair of rats for more than 40 days after he had performed a bilateral nephrectomy on one of them. In his series, the kidneys of the non-operated upon animal always showed a distinct compensatory enlargement. Sauerbruch and Heyde (7) showed that antibodies, agglutinins, etc., could be recovered in one animal after its partner had developed either active or passive immunity. In the case (8) of two sisters (who were born parabiotic) it was noted that when one became pregnant the breasts of the other were hypertrophied and filled with

secretion. Jehu (9) by means of parabiosis prolonged the life of animals in which he had produced experimental uræmia. These instances are cited to show the extremely intimate relationship of the biological processes in the two individuals of a parabiotic pair.

The theory upon which the present study is based consists in the conception that a parabiotic union removes the chemico-biologic differences between two animals of the same species and makes the tissues of a graft taken from one of these animals bear the same chemico-biologic relation to the host as do the host's own tissues.

In these experiments young adult rats of approximately the same age and weight were employed. The peritoneal cavity of one animal was opened by an incision made in the flank extending from the lowest rib to the pelvis. A similar incision was made in the other flank of a second animal. The two were then placed side by side so as to bring the incised surfaces adjacent to one another. These two stomata were closed as are the stomata in the performance of a gastro-

only very few instances did these layers fail to hold. The most frequent fatal complications were intestinal obstruction, pneumonia, and undernutrition with starvation of one of the pair. A frequent minor complication was an infection of the skin which however

bleeding from the severed thyroid arteries, which now and then resulted fatally.

Forty-four pairs of animals were employed in the experiments. Of these, 3 pairs died before transplantation of the thyroid tissue, 5 pairs were lost, and 7 pairs were decomposed to an extent that made histological findings worthless. This left 33 pairs for study. Of this number 12 showed absolutely no trace of the implanted tissue.

In order to have a standard of comparison

these. With the exception of the graft in rat

other words, the foreign body reaction and the lytic processes on the part of the host were more marked even than those in the homograft and very much more than those in the autograft. The parabiosis did not, therefore, neutralize the chemico-biologic differences. If anything it seemed to make them more intense. The exception noted above may have been the result of mere coincidence, that is, of similar or almost similar blood chemistry in the two rats.

CONCLUSIONS

Parabiosis does not inhibit those unknown agencies which, in so many instances, interfere with the success of homografts of highly developed organs, such as the thyroid.

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inserted into a muscle pocket in the anterior abdominal wall of the other animal. This pocket was always prepared prior to the excision of the thyroid in order to reduce to a minimum any possible injury to the latter by drying or too much handling. This pocket was then closed in two layers, muscle and skin. Closure of the neck wound completed the operation. During this procedure the only complication that occurred was troublesome

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UTERUS DUPLEX BICORNIS

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IN reviewing the literature on the subject of uterus bicornis we find it frequently stated that this condition is a common occurrence. Relatively only a small number have been reported. Rockey (1) reports that the index of the first sixty volumes of the *Annals of Surgery* make no mention of this condition. In Ashurst's *Surgery* written about 40 years ago Parlin of Philadelphia, quotes 8 cases from the literature. Kelly's textbook on *Operative Gynecology* published in 1898 gives an illustration of a case. Another case is reported by Fisher in volume 1 of Keen's *Surgery*. In the few textbooks and encyclopedias mentioning the condition, we usually find the description limited to a few lines.

The first case of pregnancy in the rudimentary horn of a uterus bicornis dates back of 1669 and was recorded by Mauriceau and Vassal. DeLee (2) in 1916 reported a collection of about one hundred cases of pregnancy in a rudimentary horn of a uterus bicornis. In reviewing the literature further we find several cases reported since that date. One of the most interesting cases on record is reported by Scott and Forman (3) in which twin pregnancy existed in a horn of a bicornuate uterus, for 30 years. In this case they report three full term pregnancies and three miscarriages which occurred during the period of pregnancy that existed in one horn. The pregnancy which lasted for 30 years was terminated by operation at which time two lithopedions were removed. It is interesting to note in their report that this patient showed normal menstruation when the 30 years pregnancy first occurred. Jackson (4) reports a case of bicornuate uterus, with pregnancy which was operated upon for intestinal obstruction. Mention is made by Cornell and Earle (5) of a uterus bicornis unicollis with two ova implanted in one horn. This was diagnosed ruptured ectopic with fibroid. Broadhead (6) describes a case of pregnancy in the rudimentary horn of a bicornuate

uterus gestation occurred four times in the right horn and the fifth time the left horn was involved. Watkins (7) reported a case of uterus bicornis which came to operation

erature enlightens us by showing that there are probably many such conditions that are never diagnosed. This is shown by the fact that operation often reveals anomalies that are not suspected. Reports show that cases have been diagnosed as ovarian cysts occasionally as uterine myomata, or even as ectopic pregnancy. In a case of uterus duplex bicornis it is not difficult to make a diagnosis because the two openings in the cervix can be seen and frequently felt while making a bimanual examination.

It is of interest to note that in a great many cases of uterus bicornis that have been reported there was a twin pregnancy in one horn. Probably there is a biological factor which may have an influence in causing this frequency of twin pregnancies in a double uterus. However the anatomical structure and the physiological function are without a doubt a factor. In only a few cases reported the pregnancy occurred in both sides and only one case was found where pregnancy existed in both horns at the same time. No twin pregnancies were reported in both horns at the same time.

Unfortunately the history of menstrual function has been overlooked in many of the reports. In Case 1 of our series menstruation occurred each month during the gravid period of her first pregnancy. In such cases it is difficult to figure the time of conception. It was a mystery why monthly menstruation was present until the malformation of the uterus was discovered. We would conclude that the function and the anatomy of this uterus must have been more or less equally developed in both horns.

The classification of malformations of the uterus varies in nomenclature. In many of the cases reported one could not decide in what category the specimen belonged, no statement being made of a duplex or a single cavity in the cervix. Our cases were of the duplex bicornis type, there being two distinct cavities each communicating with the vagina by an os. One case presented a perforation of the septum just above the openings into the cervix. In this connection we might make mention of a case which is very singular however. Wardlaw had a case some years ago where there was a uterus duplex bicornis discovered at the time of delivery, at term. It was a breech presentation with a prolonged second stage. Both lower extremities delivered but there the progress stopped. After this condition remained for some time without progress, careful examination revealed a perforation in

tum which formed the saddle for the babe was cut with scissors and spontaneous delivery occurred. A case was operated upon by Wardlaw at the university clinic, which showed a uterus duplex bicornis. Thus four cases have come under our observation.

In malformations of the pelvic organs it does not always follow that symptoms must

symptoms can be charged to congenital malformations of the uterus in some cases but they do not necessarily call for operative treatment. A septum in the uterus can be removed by one of the several methods mentioned by authors. This is not always necessary since the organ will perform its intended function to the degree desired.

Operative procedure is required when sufficient symptoms exist to cause the patient to suffer discomfort or where infections complicate the field. One does not desire to produce an artificial menopause in young women but certain cases require that this be

mind. Upon opening the abdomen, one might be puzzled when he finds the rectovesical ligament, unless he is familiar with this structure. It was marked in one of our cases, forming two distinct pelvic cavities. The attachment extended from the fundus of the bladder to the rectosigmoid junction. In performing a hysterectomy careful dissection is required thus avoiding injury to the bladder, rectum, and ureters. The fascia is well formed in this ligament and one hesitates at first to sever the structure, fearing it might contain a diverticulum of the bladder or an extension of the rectum.

It is well to know in cases of pregnancy if we are dealing with an abnormal uterus. Frequently in the duplex bicornis type or in a unicornuate uterus the musculature lacks the proper development, and the natural forces in delivery are unable to play their part. Thus a prolonged labor may result from lack of expulsive power. Also under such conditions the wall may be thin, and there is danger of rupture. Such cases may require cesarean operation.

The development of anomalies of the uterus is frequently found in individuals that show other developmental changes. Schwarz (9) says "Most cases of uterus bicornis show an abnormally broad pelvis, which would account for the failure of the müllerian ducts to fuse into normal adult shape." In our cases both women are tall and larger than the average female. Our pelvic measurements confirm the view of Schwarz, as both cases have increased pelvic diameters.

CASE 1. Referred by D. Wyler July 6, 1921. Mrs. W. age 35. When a girl she was large for her age but not strong. Menstruation began at 13 years of age, coming at 4 to 6 week periods. This irregularity has continued to the present time. She flowed 7 days, using 4 to 6 napkins. Last years flow lasted 4 days. Leucorrhoea since a child. With each period there is swelling of anamiae with soreness. Dysmenorrhoea has been present for about 5 years. Patient has bearing-down feeling in pelvis, and crampy pains in both ovarian regions lasting



Fig. 1. Case. Uterus duplex bicornis, showing the common fallopian tubes attached. Septum is shown between the two openings in cervix.



Fig. 2. Case. Uterus duplex bicornis, showing incisions into two distinct cavities.

through period. The pain and distress has been almost unbearable recently. As far as patient knows, she has never been pregnant. In the spring of 1921 two periods were missed, cause not known. The sexual function is somewhat abnormal, in that there is no excitement during coitus. A dyspareunia, hymen causes some discomfort in this case.

Recently this patient has become very nervous and feels exhausted. For about a year there has been vaginal irritation with polyuria.

Physical examination was negative except for pelvis. The uterus is retroverted. There is an anteroposterior septum in upper part of vagina, and on each side of this is a distinct os into the cervix. Further palpation shows the uterus to be divided, forming two distinct horns (uterus bicornis).

Laboratory notes. Blood count: reds, 4,600,000; white, 9,000; polymorphonuclears, 5 per cent; small lymphocytes, 36 per cent; large lymphocytes, 9 per cent; and mononuclear, 4 per cent. Urinary examination, negative.

Operative. Excision of dyspareunic band. Dis-

In February, 1920 patient had influenza, which

of the septum, large enough to admit the finger $\frac{1}{4}$ inch above the external os. The two cornua were readily palpated. The cervix was dilated and from the right horn two fetuses were removed, both of which were 25 centimeters in length, and each one was attached to a separate placenta.

Patient came to hospital again March 21, 1921. At this time an operation was performed for salpingitis. A pan-hysterectomy and a double salpingectomy were performed.

DEVELOPMENT

The müllerian ducts develop as epithelial thickenings near the anterior ends of the mesonephros. Later a groove appears, ventro-

years of age. Delivery and puerperium were normal. During this gravid period patient menstruated regularly each month. The reason for this was puzzling at that time.

lateral in the epithelium of the mesonephric fold. The lips of this groove close and form a tube. Cranially the tube remains open thus forming the ostium-abdominale of the muellerian duct. The tube grows caudalward and

tubercle a projection into the dorso-medial wall of the vesico-urethral anlage. The muellerian tubercle marks the position of the future hymen. Following this there is a fusion of the muellerian ducts caudally giving rise to the unpaired anlage of the uterus and vagina. The septum between the two lumina disappears usually during the sixteenth week.

of cranial and caudal longitudinal portions and a middle transverse portion. The caudal longitudinal portion is fused with its fellow to form the uterovaginal anlage.

The mesenchyma above the uterovaginal anlage differentiates into muscle and connective tissue of the uterus and the vagina. The wall between the transverse portions of the muellerian ducts bulges outward so that the cranial concavity is now convex. The transverse portions of the ducts form the fundus of the uterus and the vagina developing from the uterovaginal anlage. The growth of the uterus is slow. It is practically the same length at birth as in a girl at 9 years. At the time of puberty growth is more rapid reaching a length of 72 millimeters at 18 years, nearly the maximum of the virgin uterus.

Failure of union of the muellerian ducts results in the different malformations. In the opossum we find the uterus duplex bicornis, cum vagina duplex. In the squirrel and beaver we find normally a uterus duplex bicornis. In the dog hyena and sheep, there is a uterus bicornis unicollis. The ant-eater presents a uterus biforis, while in the birds there seems to be a unilateral development, forming a uterus unicornis. Various forms may develop as a result of an unequal development in the two sides. When both halves develop equally menstruation and conception

in both sides are possible. Pregnancy usually occurs in the better developed side. It is difficult to explain the various anomalies occurring in the derivatives in the muellerian ducts. In the normal mustelus antarcticus the uterus is divided into compartments. In oviparous monotremes the muellerian ducts do not fuse but remain distinct and open into the urogenital canals. We can trace the differentiation of the oviducts in the opossum. A dilated portion of each oviduct gives rise to a uterus. Each uterus communicates with the vagina by a distinct os. The uterus bicornis is found in carnivores and most ungulates and the uterus simplex in primates.

SUMMARY

1. Malformations of the uterus are not uncommon but relatively few in number are recognized.

2. Pregnancy may occur in both horns of a uterus bicornis.

3. Menstruation may occur during pregnancy in a bicornuate uterus.

4. Statistics show frequent occurrence of twin pregnancy in this type of uterus.

5. Malformations of the pelvis may or may not exist with anomalies of the uterus.

6. Reports of uterine malformations should give complete history of menstrual function.

7. Malformations of the uterus are frequently confused in diagnosing pelvic and abdominal lesions.

8. When doing a hysterectomy in malformations of the uterus always be careful to avoid injury of a misplaced ureter.

9. The rectovesical ligament is confusing when first encountered.

10. Cases in this report are classified as given by Graves (*Gynecology*).

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DEPARTMENT OF TECHNIQUE

THE STRAIGHT VESSELS OF THE TERMINAL ILEUM¹

By R. L. PAYNE, MD, FACS, Norfolk, Virginia
Surgeon, St. Vincent's Hospital

IT is my desire to call attention to the straight vessels of the terminal ileum as a hitherto undescribed though definite anatomical feature of this portion of the intestinal tube. Its

value lies in the ability of the surgeon to recognize at a glance this particular and important part of the intestinal tube, namely the last inch and one half of the terminal ileum, by recognizing

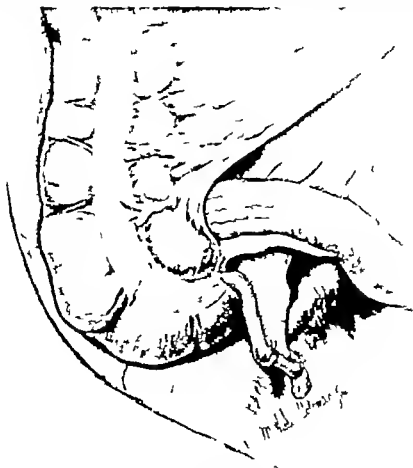


Fig. Sketch from living specimen showing three straight vessels in last inch and one half of ileum, running parallel with the long axis of small bowel. Sometimes only one or two vessels are found present.

Presented before the Southern Surgical Association at Portland, December 1941.

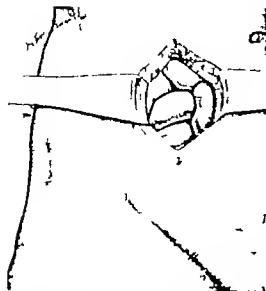


Fig. 2. A right rectus incision. A quick location of ileocecal junction or appendix is made easy by picking up the terminal ileum. Incision is accompanied by the longitudinal muscle as seen on the lower end of muscle of bowel presenting in the incision.

the straight vessels found only at this point in the whole of the intestinal canal as a definite and distinguishing feature.

From the pylorus downward in the small bowel to a point approximately one and one half

inches from the ileocecal valve, the vasa vessels run at right angles to the long axis of the bowel passing up from the mesentery on each side of the mesentery.

ileocolic and the right colic arteries, sending their branches upward from the ileocecal valve just under the peritoneum and parallel to the long

ly beneath the peritoneal coat of the bowel, whereas the other blood vessels supplying the small bowel run between the mucosa and submucosa.

With regard to frequency of this finding, we have observed these vessels to be present, and they have definitely indicated to us this particular point of the small bowel in one thousand successive laparotomies.

While there are many reasons for locating without difficulty the ileocecal valve the greatest one for this definite anatomical point is probably to be found in locating the appendix using the last inch and one-half of the terminal ileum as a more definite and more ready guide to the base of the appendix than other methods of location such as following the longitudinal muscle bands of the large bowel.

CHOLECYSTECTOMY FOR CHOLELITHIASIS

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THOUGH much has been done toward obviating unpleasant results and recurrences after operations upon the biliary tract and some progress has been made we must still conclude that in the aggregate the results are not satisfactory. A considerable number of patients complain of symptoms referable to the upper abdomen after operation and a certain

surgeon are probably of greater number than those reported from the large clinics as he is not in a position to select his cases and as a rule does not operate upon his patients until the disease is well advanced and the pathology present greater in amount.

The causes given for the necessity for re-operation are mainly adhesions forming after operation and stones in the ducts either overlooked at the time of the primary operation or subsequently formed. Occasionally the hepatic or common ducts are injured at the primary operation and the subsequent operation is necessary to do away with the resulting obstruction of the biliary passages causing jaundice with its train of disagreeable symptoms. With this class of unpleasant results discarded there remains still a fairly large percentage of cases in which the result is not satisfactory. No definite point can be found but the patients are not up to par and complain of indefinite gastric and abdominal symptoms. There is no sufficient indication for another operation but the patients are not cured and the result must be classed as unsatisfactory with no relief promised by further surgical interference. This is the most difficult type of case to manage and cure for. The ———— relief they mech their ————

geon until they are far advanced and operative cure is rendered more difficult.

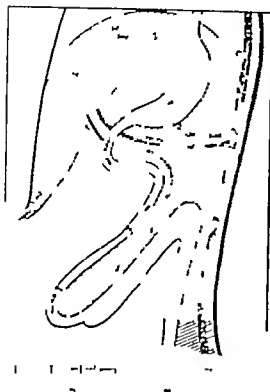
These indefinite disturbances in the physiology of the upper part of the gastro-intestinal tract are due to some interruption of the nervous mechanism by which the various integral parts of the complex are correlated in their action. In order that gastric and upper intestinal digestion may proceed in a normal manner there must be a harmonious and governed action of the stomach, liver, duodenum, and pancreas. Lack of proper action of any one of these organs with relation to the others will disturb the proper functioning of the upper intestinal tract.

most important organs of intra uterine as well as extra-uterine life. The gall bladder develops from a bud of the fore gut, the original site of which remains as the papilla of Vater situated in the second portion of the duodenum. This

system by the hepatic artery and with the venous plexus of the gut by the omphaloenteric vein which subsequently forms the portal vein (Fig. 1). Early in embryonal life the umbilical vein leaves its position as a body wall vein and shifts to its intra-abdominal position passing along and defining the lower border of the ventral mesogastrium finally to enter the liver at the transverse fissure and break up into its radicals. Accompanying the structures as they pass through the mesogastrium into the liver are the branches of the sympathetic nervous system and the lymphatics emerge from the liver at the same point. The function of the sympathetic nervous system in this location is to form ———— the of ent

is also a connection between the hepatic plexus of the sympathetic and the left vagus nerve which traces a direct connection between that plexus and both the superficial and deep cardiac plexus by which a pathway is established for impulses which co-ordinate cardiac action with that of

the result is that the operation is postponed as long as possible and cases do not reach the sur



stomach, upper duodenum, and pancreas below. The importance of these structures, especially the sympathetic plexus, in the proper regulation and co-ordination of hepatic function with the function of the other organs cannot easily be overestimated and it is this part of the body that the surgeon must attack in his operative

hepatic omentum is a dangerous procedure for in this manipulation those branches of the hepatic plexus which accompany the cystic duct and cystic arteries are bound to be divided and the chances are that many of the branches to the right lobe of the liver will likewise be divided. Those branches which pass downward along the superior pancreaticoduodenal artery are also in danger and if these are divided the connection between the liver and pancreas through the sympathetic system is broken. With this broken the co-ordination between stomach, duodenum, pancreas, and liver is impaired, and there results an independent action of the liver cells uncon-

digestion in adult life. It can be seen what an

ANATOMICAL

With the positional changes which occur in development, that portion of the ventral meso-

and between its leaves lie the hepatic and cystic ducts with the beginning of the common bile duct, the hepatic artery with its cystic branches, the portal vein, the hepatic plexus of the sympathetic nervous system and the largest of the lymphatics draining the liver. The fibers of the hepatic plexus parallel and partly surround the cystic and hepatic ducts, and a complete division of the gastrobeptic omentum at this point severs the nerve connection between a portion of the liver above and the pyloric end of the

vague and indefinite symptoms complained of by the patient. An operation of this character relieves the patient of the mechanical difficulty

either from the fundus of the gall bladder toward the cystic duct or in the opposite direction. If the gall bladder is distended it is usually a simpler technical procedure to start the removal at the fundus. If on the other hand, the gall bladder is small and contracted the gastrobeptic



Fig. 1

Fig. 2

Fig. 3

Fig. 1. Incision through peritoneum covering gall bladder continued down through anterior leaf of gastrohepatic omentum.

Fig. 2. Cystic and right hepatic ducts delineated. Cystic artery located.

Fig. 3. Removal.

sutured together covering the raw surface left after the removal of the gall bladder (Fig. 3). By this technique the gall bladder is removed from its attachment to the liver along the original line of division.

Carinal dissection of the biliary duct system in the gastrohepatic omentum obviates the danger of injury to the ducts, either of including the hepatic or common duct in the clamp and ligating them or partial division of the common or hepatic ducts. If the typical arrangement of the junction of cystic and hepatic ducts in which the hepatic duct joins the cystic duct at an acute angle forming the triangle of Calot were the rule

this would not be so important. Ruge states, however, that this arrangement obtains in only about 33½ per cent of cases and his results have been substantiated by other observers.

above downward in order to minimize the danger of injuring the ducts. Eisendrath (2) has given a detailed study of the arrangement of the biliary ducts which fully confirms the observations of Ruge and the earlier observers. In the technique here described the cystic duct being dissected out, is clearly defined and the danger of injury to the hepatic and common ducts is practically done away with. Before clamping the cystic duct it should be cleared all the way down to its junction with the hepatic duct and carefully examined for stones lodged in its distal

end.



FIG. 3.



FIG. 4.

FIG. 5. Removal from below upward. The cystic duct is shown.



FIG. 6.

division of the cystic duct the gall bladder is removed from below upward (Fig. 5).

In removal from above downward (Fig. 6) it is well to make a preliminary examination of the ducts in the gastrophepatic omentum. In many instances complete dissection is impossible and it is in such cases that removal from above downward is indicated and the dissection of the ducts is completed after the gall bladder has been mobilized. The subsequent steps of the procedure are the same in either method of removal. By carefully dissecting the peritoneum from the medial side of the gall bladder as the dissection proceeds downward from the fundus the cystic artery can be isolated, clamped, and divided with little, if any, hemorrhage, and hemorrhage more than anything else makes an accurate dissection of the ducts difficult.

After the removal of the gall bladder the remaining portion of the cystic duct, the common

portion. Owing to the slight constriction caused by the junction with the common hepatic duct stones in the duct are often arrested at this point. It is well to bear in mind that cases in which there is a history of biliary colic nearly always have a calculus in the cystic duct. Calculi

in the cystic duct. These may be very small and of the mulberry variety and extremely difficult to palpate. In a recent case it was not possible to palpate any calculi until the duct had been carefully isolated, when three small mulberry stones were found in the cystic duct the largest of which was 3 millimeters in diameter and the smallest 2 millimeters. The distal stone being

duct as it passes between pancreas and duodenum to its orifice in the latter. This is not a difficult procedure when the probe is in place in the duct. If stones are found they are removed either by direct or transduodenal choledochotomy.

The treatment of the stump of the cystic duct and whether or not to drain the site of operation

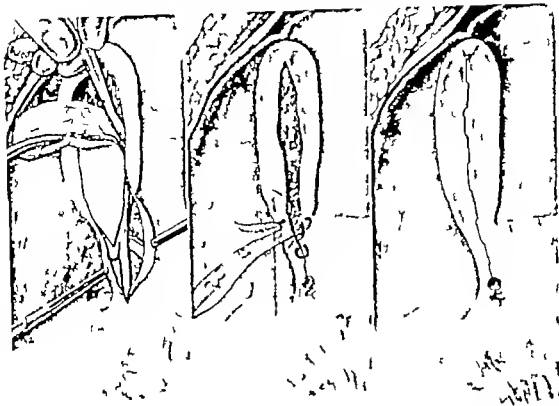


Fig. 6

Fig. 7

Fig. 8

Fig. 6 Removal from above duct and cystic artery is being approached preparatory to ligation.

Fig. 7 The cystic duct has been ligated and anchored in the sutured incision in the gastrohepatic omentum as

shown, so that it maintains the proper angle with the hepatic duct.

Fig. 8 Operation completed. Peritoneum is sutured to cover raw surface of the liver.

is a difficult one to decide and the surgeon must make this decision at the time of the operation. Although no rule of thumb can be laid down

blocking of the lumen, drainage is necessary until such a time as the patency of the lumen is re-established. The blockage is usually temporary and disappears in a comparatively short time. As a rule it is due to an inflammatory swelling or edema of the lining epithelium caused either by infective cholangitis or trauma incident to the presence of stones. The mechanical block

the ducts are clearly exposed and anomalies recognized and dealt with accordingly. The trauma incident to the removal of stones from the hepatic or common ducts will practically always be followed by an edema of the lining epithelium of the ducts sufficient to cause a temporary block to the passage of bile. It is, therefore, the practice of the writer in all cases in which no stones are encountered in the common or hepatic ducts or in which there is no marked

just beyond the first ligature nearer the beginning of the common duct. The ends of this ligature are left long and their use will be described later. If there are stones present it may be assumed that the trauma incident to their removal is sufficient to cause an edema of the

as with an operation performed as noted above

mucosa which will give rise to a temporary mechanical obstacle to the passage of bile through the duct to the gut. In such cases both hepatic and common ducts should be drained. Drainage of the common duct through the stump of the cystic duct is sufficient in the presence of a cholangitis not due to stones.

The question of the behavior of the short stump of the cystic duct when involved in the scar of healing seems an important one. If

far different procedure to locate the stump of the cystic duct at a secondary operation after cholecystectomy than after cholecystostomy for the gall bladder is no longer present to act as a guide in the dissection and in fact proper recognition of the exact relation of the ducts is well-nigh impossible. The cystic duct is immobilized by using the ends of the second ligating suture

abdominal wound along the line of the intraperitoneal drain. While if it disappears, as is

which in the normal keeps it in place, so grave it still has a point of fixation and cannot assume an abnormal position and give rise to an anomaly of the duct relations or an angulation of the ducts. The gastrohepatic omentum being closed about and above it and the peritoneal cuffs from the gall bladder being sutured a smooth

peritonealized surface is left which reduces the danger of postoperative adhesions to a minimum (Fig. 10).

Though the ducts themselves are not drained it is erring on the side of safety to place a small cigarette drain down to the stump of the cystic duct which can be removed at the end of 24 to 36 hours. Should the stump of the duct break open the bile will flow along the tract thus formed and appear at the abdominal wound rather than escape into the peritoneal cavity. Thus far this has not occurred, but as a measure of safety I use the intraperitoneal drain and have not as yet had the courage to close the abdominal wall without this temporary drainage.

CONCLUSION

The functions of stomach, duodenum, and pancreas are very closely connected by the sympathetic nervous system. A break in this

tonal dissection of the biliary system with as

the stump of the cystic duct and the hepatic ducts be maintained. This can be done by anchoring the stump of the cystic duct in the incision made in the anterior leaf of the gastrohepatic omentum.

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THE COMBINED TREATMENT OF FRACTURES OF THE SHAFT OF THE FEMUR

BY E. L. ELIASON, A.B. M.D. F.A.C.S. PHILADELPHIA

IN 1918, the writer published an article¹ on the external fixation in fractures of the femoral shaft. Briefly it is the fixation of

femur what is the best means of handling it? The earliest possible application of traction is important. This should be applied with weights and fixation splints: Hodggen, Thomas (angled) or posterior angled splint. The traction must be in the line of the long axis of the broken bone and applied through adhesive or through direct bone attachment with the tongs, calipers or pins.

The primary reduction under anesthetic and the fixation in the flat position, gives poor re-

traction, in the same series, gave 25 per cent good results operative treatment and dressings in the flat position without traction gave 33½ per cent good results.

With the limb fixed or under traction sufficient to reduce the shortening, an X-ray is taken at the earliest possible moment. If the two views show good alignment and but little shortening, increase the traction, using tongs or pins, if the adhesive is not practical. Another X-ray is taken 24 hours later and if the fragments have the slightest amount of end-to-end approximation, the treatment is continued. It is absolutely imperative that the thigh and leg be flexed from 45 per cent to 60 per cent for it is only in this position that the muscles affecting the femur are in a state of "equilibrium."

In fractures of the upper half it is well to abduct the limb as well as internally rotate the lower fragment in order more nearly to meet the position of the upper fragment. At all times the strictest attention must be paid to the traction. It must work uniformly. A fish scales placed in the rope between the limb and the pulley will always indicate the efficiency and the amount of the traction (Fig. 1).

It has been the writer's experience that unless the fragments engage somewhat, it is best to do an open reduction and fixation. Of course, in many instances good results are obtained 56 per cent in the above quoted series, without an operation but it is rather a trying and hazardous method as it really requires especially trained nurses, orderlies, and assistants (Figs. 16 and 21 illustrate results under such treatment). If then with the above treatment tried for 4 or 5 days, we cannot reduce the fracture or obtaining reduction we cannot maintain it then it is our

ment depends, however upon technique and postoperative care. In other words, we must prevent infection, make a stable union without too much trauma, and lastly maintain this internal splinting in a position of muscle equilibrium.

Prevention of infection. Most infections are of the staphylococcal type and probably are a result of skin contamination. To prevent this, use a scrub-up preparation the evening before operation and apply a sterile dry dressing. On the operating table (Hawley) use iodine and alcohol.

At this point the decision is to be made as to the type traction you will use for reduction and for postoperative treatment. If bone traction by the tongs or Steinmann nails is to be used, it should be placed now and attached to whatever is to be used as the tractor. The writer has devised an addition to the Hawley table which he has found very satisfactory. In the absence of this a stout loop of bandage can be passed through the tongs or Steinmann irons and around the shoulders of an assistant or orderly. If the

we cannot depend on manual traction as it cannot be maintained constant enough. If the fracture line is transverse or only moderately oblique neither of these may be necessary.

The best incision is the external anterolateral with its center laid at the level of the lower end of the upper fragment. The incision should be ample i.e. from 6 to 10 inches long, depending

¹Eliason: Method of external fixation for fracture of femur. Surg., Gynec. & Obst., April 1919, 22.

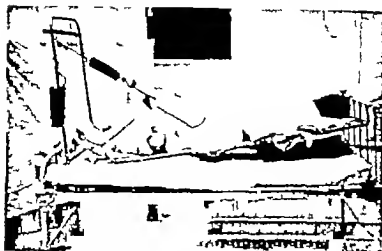


Fig. Patient in fracture of femur. Showing fish wash placed in rope between the limb and the pulley to adjust efficiency and amount of traction.

upon the case. Sew damp towels to the under surface of the skin edge. This is important in order that they may not be dislodged during subsequent manipulation.

Carry the incision down through the muscles, catching the bleeders as you go until you open

the hematoma at the fracture site. Remove the clots from the broken bone ends and the immediate vicinity. If traction will not reduce the shortening and the fracture is transverse or slightly oblique grasp each fragment with a

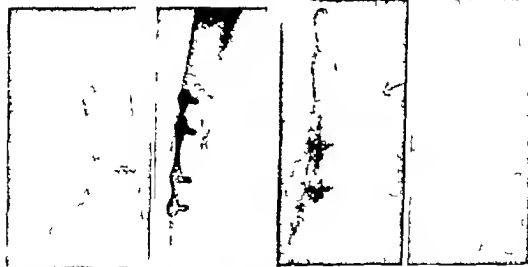


Fig. (left) Case after primary traction before operation. Unfortunately the roentgenograms which are taken later are lost during the moving of the X ray department.

Fig. b. Final result, Case

Fig. 3 (at left) Case five days after plating. Note the loosening of the screws. This case did not have postoperative traction.

Fig. 4. Case. Taken at time of follow up report. Almost all of the angulation has been corrected.



Fig. 5. Case 3. Before operation.



Fig. 6. Case 3. Four weeks after operation.

Lane forceps. Then have the assistant who has the leg in charge bend the limb away from the

tion with the minimum amount of trauma denudation of the bone and destruction of the blood supply. If it is found necessary to put a finger in the wound, a fresh glove should be worn.

that no undue strain is made on the plate and screws. Wire is not best except to encircle comminution. Bands can be used for long oblique and spiral fractures but I have seen some bad results from absorption of the bone ends and non-union. A fenestrated rubber tube the size of a lead pencil is placed in the dependent angle of the wound and reaching to the bone at a point an inch or two from the fracture site. The wound is now closed, skin included, with catgut. A heavy silk is passed through the exposed end of the drainage tube and the gauze dressings are split and applied permitting the

Maintaining this fixation is our next duty. The traction is now transferred to the bow which is attached to the frame which has been placed on the Hawley table previous to placing the patient upon it.

The patient is now enveloped in the plaster casing as described in the article noted above. From 12 to 20 pounds weight is added for the traction and this is kept on until the patient is out of the anesthetic or better still for 24 hours. It is then gradually reduced in amount to 8-12 pounds as registered on the fish scales. The entrance and exit of the traction irons in the skin are protected by a cocoon of cotton sealed to the pin but not to the skin.

Forty-eight hours after operation, a small window is cut over the pull box, it is lifted out, the gauze layer cut, the silk found and by this means the drainage tube removed. This little technical point obviates the necessity of cutting a large window over the wound, a procedure which all too often results disastrously. For how often have we all seen the screws become loose and the fracture site angle into the fenestra due to the absence of pressure which should be afforded by the cast. The wounds and the dressings which will be seen to be stained with blood are now left alone as the catgut stitch will absorb.

I think this matter of drainage is very important as it allows exit to the postoperative bleeding and permits the periosteum to fall in its natural place around the fracture site instead of being floated back by a hematoma. In none

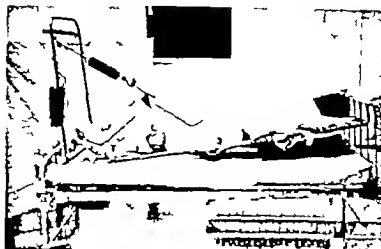


Fig. 2. Patient in fracture frame, showing skin scale placed in position between the limb and the pulley to indicate efficiency and amount of traction.

upon the case. Sew damp towels to the under surface of the skin edge. This is important in order that they may not be dislodged during subsequent manipulation.

Carry the incision down through the muscle, catching the bleeders as you go, until you open

the hematoma at the fracture site. Remove the clots from the broken bone ends and the immediate vicinity. If traction will not reduce the shortening and the fracture is transverse or slightly oblique grasp each fragment with a



Fig. 3. (at left) Case 1 after primary traction before operation. Unfortunately the postoperative X-rays were lost during the moving of the X-ray department.

Fig. 3 b. Final result, Case 1.

Fig. 3 (at left) Case 2 five days after plating. Note the loosening of the screws. This case did not have postoperative traction.

Fig. 4. Case 3. Taken at time of follow up report. Almost all of the angulation has been corrected.



Fig. 12 (at left) Case 6 After primary traction for 24 hours
 (at right) Case 6 After 2 weeks after operation
 The light streak on the right is an artifact

December 8 discharged Union firm, external callus



Fig. 13 (at left) Case 7 After operation
 (at right) Case 7 After operation

December 22, discharged with union, no deformity and no shortening and with about 1 full knee motion (Fig. 6)

swayed traction exerted through the knee joint, illustrating the disadvantage of such traction. The condition does not inconvenience the patient in the least according to his own statement

Case 5 (Fig. 14) admitted to hospital November 3, with history of his right femur fracture

found joint was the point of union. Union was complete. The patient was discharged. The patient was discharged. The patient was discharged.

November 11 Union removed
 November 12 Union removed and
 slight motion of knee and ankle
 In October because of defect driving up to the end
 of the bone and a modern splint applied with traction
 till union
 December 12 Splint removed and traction removed
 A slight supernal infection was present around the
 entrance of the pin

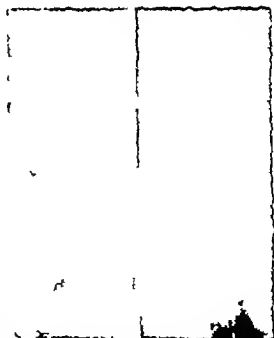


Fig. 14 (at left) Case 9 After 1 post op union in the Bryant position
 (at right) Case 9 Lateral view



Fig. 7 (left) Case 4. After ether anesthesia, adduct.
Fig. 8 (Case 4) Lateral view.

of the 13 reported cases below all of which were de-

de-
ab-

to the fracture. At the end of a week the plaster casing is cut away from in front of the leg thus leaving the leg and foot lying in a posterior molded splint. This permits daily motion of the ankle and knee which should be passive for the first 4 weeks. The muscle action is very

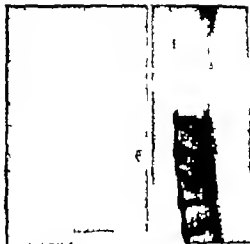


Fig. 9 (left) Case 5. After 5 attempts at reduction, one under the fluoroscope.
Fig. 10 (Case 5) Anteroposterior view.

and so type. Drawing the traction and splint in the flat position did not result in reduction (Fig. 9, 10). On Novem-

and post-operative period in the hospital.
Follow-up report: Patient is now able to move his
thigh and leg as before.

Case 6: W. age 4, admitted September 30, having
been struck by an auto. Examination found cerebral con-
cussion, fracture of left eyebrow and fracture of the
shaft of the right femur. A temporary Buck's traction

return when these cases have been placed too soon in the flat position, without traction. Complete weight bearing should not be allowed for from 4 to 6 months in the adult.

The 13 cases reported below in detail all, with one exception, were treated by the writer in the position of muscle equilibrium and with one exception with postoperative traction.

Case 1: J. D. age 1, admitted November 3, with history of being struck by an auto truck. On admission examination found fracture of the right femur, laceration of the scalp and left thigh and cerebral concussion.



Fig. 4 (left) Case 6 After primary traction for 24 hours
 Fig. 4 (right) Case 6 Anterior view 3 weeks after operation
 The lucid area, down the center is an artefact

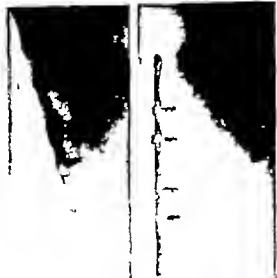
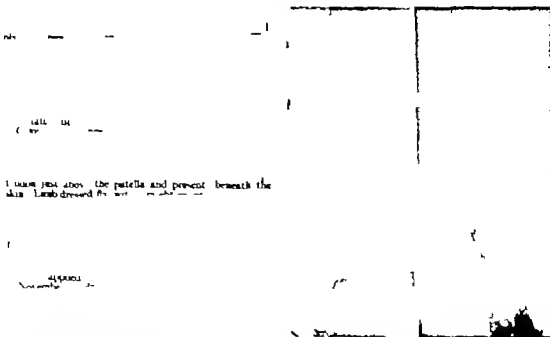


Fig. 5 (left) Case 7 After operation
 Fig. 5 (right) Case 8 After operation

December 24 discharged with union no deformity and no shortening and with about full knee motion—(Fig. 6)



I made pins above the patella and pin in beneath the skin. Lamb dressed the wound.

December 4, Stereomycin and band traction removed.
 A slight superficial infection is present round the entrance of the pins.

Fig. 6 (left) Case 9 After period adhesive traction in the Bryant position
 Fig. 6 (right) Case 9 Lateral view

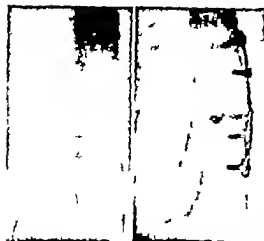


Fig. 7 (at left) C-16 After reduction and cast in flat position.

Fig. 8 Case 1 Lateral view 1 week after operation. The re-loop sutured to the external condyle.

Follow-up report: Patient says his leg is perfect. He has no limp, pain or limitation of motion. Last time was 6 months.

CASE 4. I. C. age 15, admitted November 5, with a fracture of the middle of right femur. X-ray 1 once

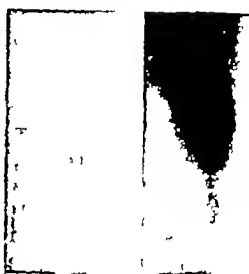


Fig. 19 (at left) Lateral view of Case 1 15 weeks after fracture.

Fig. 20 Case 1 One month after operation.

June 12, X-ray report good position.

July 2 cast as removed and the X-ray also of good position and union (Fig. 9).

July 13, patient discharged with solid knee—no deformity and no shortness.

Follow-up report: Patient 4 years after operation, walks without limp and states that his limb is as good as the other one.

CASE 6. H. A. age 34, admitted October 3, following an auto accident. Examination revealed a closed

disrupt 40 pounds of traction.

October 23 open reduction, a 1 incision and with the aid of the Winans nail traction, a 6 hole Bierman plate and pins for the comminution. Used Pfaltz dress placed the wound. The small plaster trougher and frame drawing with 20 pounds traction applied. Traction reduced to 10 pounds, 1 end of 3 week. Cast

traction.

May 30, X-ray reports the same deformity (Fig. 9).

was found at the entrance of road.

January 5, and removed and took later patient.

with the same deformity. Adhes. traction with pins was added.

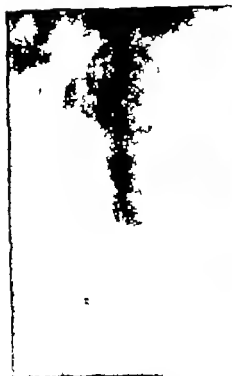


Fig. 20. Case 2. Ten months later than in Figure 20, showing solid union.



Fig. 21 (at left) Case 15. Anteroposterior view.
Fig. 22. Case 3. Lateral view 7 weeks after operation.

Case 9. A. D. age 8, admitted November 28, having been struck by an auto causing fracture of middle of the shaft of femur.

November 29, X-ray shows the usual deformity with overlapping.

Union on the femur.

performed November 27. A skin incision, a hole plate, pivot drain, Steinmann traction, and a plaster trough and frame dressing. Traction position.

December 8 cast cut and knee and ankle motion started. Wound clean.

December 20, Steinmann nail out.

January 8, cast removed and solid union found with no deformity (Fig. 5).

January 15, discharged in good condition on crutches.

Follow-up report: Patient states, 3 years after operation.

union.

At 18 months discharged on crutches with solid union, but with a fixed knee.

Follow-up report: Patient has a good useful leg with no shortening and no deformity (Fig. 6). The osteomyelitis was cured. No complaint.

Case 10.

Admitted November 28, 1930. The patient was dressed in a plaster cast in the straight position.

was used and a pivot drain inserted. The view of the local condition, however, was not used. The patient

legum.

January 9, cast removed, union solid, a slight granular lesion present due to slipping up of external condyle.

February 2, knee joint free but the quadriceps being adherent to the fracture site and flexion with flexion and extension about 5 per cent.

At 20 months patient walking with help of crutches, using the limb as a partial weight bearer and improving rapidly at this time of writing.

started. The patient was dressed in a plaster cast in the straight position and knee and ankle motion.

May 3, traction removed, the hole entrance infected.

June 18, patient discharged on crutches, with solid union.

union.

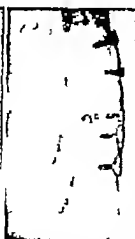


Fig. 7 (at left) Case 1 After reduction and cast in flat position

Fig. 18 Case 1 Lateral view 7 weeks after operation. The wire loop is used to fix the external condyle.

Follow-up report: Patient says his leg is perfect. He has no limp, pain or limitation of motion. Last time 6 months.

CASE 4: I. C. age 15, admitted November 5, with fracture of the middle of right femur. X-ray 1 week



Fig. 19 (at left) Lateral view of Case 4 1 week after fracture

Fig. 20 Case 4 One month after operation

June 1 X-ray reports good position. July 4, cast removed and the X-ray showed good position and union (Fig. 20).

July 26 patient discharged with solid union—no deformity and no shortening.

Follow-up report: Patient 4 years after operation, still without limp and states that his limb is as good as the other one.

on crutches

October 4

end of the X

plate and

draw placed

and frame drawn. 10 lb. weight traction applied

traction

Adhesive (Fig. 6) used the

in, until

sutures

applied

it in the

1 in the

Direct pressure modified fracture added. Adhesive traction with 10 pounds was added.

added

EDITORIALS

SURGERY, GYNECOLOGY AND OBSTETRICS

FRANKLIN H. MARTER, M.D.
ALLEN B. KRAVETZ, M.D.

Managing Editor
Associate Editor

OCTOBER, 1911

RADIUM TREATMENT OF UTERINE FIBROIDS

EXPERIENCE has established the fact that radium is the best known remedy for selected cases of uterine fibroid. Uncomplicated symmetrically developed fibroids not larger than a uterus of three or four months pregnancy in women near the menopause are successfully treated with radium. One thousand two hundred to one thousand eight hundred millicuries (milligram hours) of radium element thick screened is advised. One thousand eight hundred usually produce no more symptoms than one thousand two hundred millicuries and are almost certain to produce a permanent menopause except in younger women. Re-establishment of menstruation, in our experience, has resulted in renewal of growth and recurrence of symptoms.

The radium should be placed within the cavity of the body of the uterus. One and occasionally two menstruations may follow the treatment before amenorrhea results. Atrophy of the tumor commences about the eighth week. In four or five months the tumor may be felt as a small nodule but has usually disappeared or has become so small that it cannot be palpated.

Intramural fibroids are best suited for radium treatment but subperitoneal and even submucous do not necessarily contraindicate its use.

Intra-abdominal complications especially chronic infections indicate surgical treatment. When cases which are complicated with chronic pelvic infection are treated with radium there may result reinfection and abscess formation.

The objection to the use of radium in larger tumors is chiefly the danger of mistakes in diagnosis. When radium is used the diagnosis should be frankly certain the fibroid uterus should be one that can be freely rolled between the fingers on conjoined palpation.

Success in radium treatment necessitates production of a permanent menopause. This fact is the principal reason for use of the thick screen. The thick screen does not materially increase the amount of radium required to stop ovulation but lessens materially the amount of necrosis at the site of radiation and thus lessens the dangers of infection and the amount of the thin watery discharge that results.

In younger women it is preferable to remove the fibroid growth by means of surgery rather than to destroy the function of the ovaries by radium.

The limitations to the use of radium may be extended in case of poor surgical risk.

The nervous disturbances associated with the menopause following radium in our experience have been about the same as those after the natural menopause.

THOMAS J. WATKIN

November 11 patient walking unaided Joint action
near normal

CASE 1 C. S. age 16 When in —

has —

6
16
10
4
18

normal

November 20, cast removed Two weeks later the
patient is running on crutches using the limb normal
right before 11 —

suspected because it
was not
fracture
from it
proves
lux or fi
angulat
ment,
namely
pulling
broken)
the —
1
1

in hospital and private work, in which what we
might term the combined treatment was used,
namely internal and external fixation with some
type splint (plaster in this series) and the con-
tinued employment of traction. It is poor
surgery to plate or wire a fracture and then not
give it the benefit also of the proper state of
muscle equilibrium which is only accomplished
in five —

12 are examples. In both of these cases the
direct bone traction had to be overlaid the
adhesive proved inadequate

SUMMARY

1. In the 11 operative cases all were drained
and no infections occurred
2. No case had a bad result the greatest
shortening was one-fourth inch
3. But one plate had to be removed and that
was due to 2 errors, i.e. too large a fenestration
and no traction
4. The follow-up report after months, and
in a few cases, years, show no changes for the
worse and no plates have had to be removed
5. Every one of the 13 patients had a firm
limb, with no lumps and joint limitation,
but slight in 2 cases

CONCLUSION

Judging by this small series the best treat-
ment for fracture of the shaft of the femur is the
continued use of internal and external fixation
in the full sense of the word. It gives 100 per
cent good results

November 7 1930 limb—no shortening, crutches
October 21, perfect foot and ankle motion, forearm at knee
— — — —

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THOMAS J. WALKIN

INTRA-ABDOMINAL AND INTRA-VISCERAL PRESSURE

SURGEONS are prone to take a materialistic mechanical, "two times two is four" view of things often to the exclusion of important principles. Every surgeon in operating upon asthenic patients with general abdominal ptosis has observed the dilated and atonic condition of the stomach, bowels, ducts and even blood vessels. Without seriously thought he has often acceded to the neurological view that the case represents some obscure form of neurological or nutritional dyscrasia.

The well known and efficient Weir Mitchell rest cure and forced feeding treatment for neurasthenics was based on the presumption that rest plus packing of the irritable nerves with fat brought about the good results. In the Muetter lecture for 1913, I showed a number of roentgenograms illustrating the difference in size, motility and position of the hollow viscera before and after fattening, which were very striking. In many instances of patients with dilated atonic dropped stomachs, who had been fattened the stomach had been lifted to its normal position, normal peristaltic waves had been restored and the size of the stomach had been reduced by half. My theory as to the cause of this change was that the deposit of fat in the abdominal cavity enclosed by relatively inelastic walls had greatly increased intra-abdominal pressure and at the same time had thickened and shortened the mesenteries. Nine additional years of intensive study of a much larger number of cases has firmly developed this assumption into a conviction.

Up to 1909 more than two hundred and fifty articles had been written of experimental work on implantation of the ureter into the bowel. No successful series had been reported. All methods had failed because of so-

called "ascending infection." All attempts had been along purely technical lines. During 1909, in the course of experimental work on the pancreas, I discovered that bile ducts transplanted into the intestine by direct methods always dilated. Dissection of the duct of a normal dog's duodenum showed that it traversed the space between the mucous membrane and muscle for some distance before entering the bowel. I assumed that intra-intestinal pressure exercised on the mucous membrane overlying the duct, normally closed it against direct entrance of intra-intestinal pressure into the duct. This was proven by transplanting ducts to a similar position under the mucous membrane by operation when it was found that no dilatation took place. Similar experiments proved that the ureter could be successfully implanted in the same way. The kidneys, ureters and intestines of five dogs with healthy kidneys and undilated ureters, following operations from 2 to 6 months, were presented before the American Medical Association in 1910. C. I. L. Mayo has now implanted more than a hundred ureters clinically by the submucous method with remarkable results. Smaller series of equally successful cases have been reported by Lower Hunsner myself and others. We believe these results can be explained by static intra-intestinal pressure brought to bear on the mucous membrane overlying the duct.

The circulating fluids of the body are propelled through elastic tubes by intermittent muscular contraction acting as the *sine qua non*. In order to maintain the ground gained during intervals of contraction mechanical valves have been used, for example the valves of the heart, the veins, ureters, bile duct and the ileocecal valve. By the use of these valves, combined with muscular action, fluids may be delivered from a cavity of a lower to one of higher intravisceral pressure. For example

the ileum with a relatively lower intra-intestinal pressure may permanently deliver fluid into a distended large intestine of much higher intra intestinal pressure. If the ileocecal valve is perfect. Bile under low pressure may be delivered from a relatively non muscular bile duct into the duodenum of much higher pressure under certain circumstances provided the mucous valve protecting the end of the duct is good.

Every surgeon has noted that a biliary fistula ceases to discharge during the day some time before it ceases at night. Kehr noting this, fed his patients frequently during the night and found when he did so that the flow of bile was the same night and day. Terry feeds his patients frequently night and day following cholecystectomy to prevent the dilatation of the common duct.

Every surgeon has noted that when the gall bladder is removed or becomes functionless, the common and hepatic ducts dilate. Judd and others believe that the sphincter of Oddi is entirely responsible for this. While conceding the importance of this muscle I do not believe it is entirely responsible or even the chief agent. Dilatation takes place when the duct is planted directly into the intestine with out the sphincter of Oddi. It is probable that if the peristaltic waves of the duodenum could be maintained during most of the 24 hours dilatation would not take place.

The question may be asked how does an implanted ureter or bile duct containing fluid under low pressure permanently deliver its fluid into the intestine of much higher pressure and particularly if there is no great amount of muscular tissue in the former? How does an undistended small intestine permanently deliver fluids and gas under relatively low pressure into an obstructed large bowel in which the cecum is distended almost to the point of de vitalization? Such a thing of course, can only

take place in the presence of a perfect valve. The only possible explanation for this is that a peristaltic wave passing beyond the valve reduces the intra intestinal pressure immediately in its wake. This permits of delivery of the fluid from a low pressure organ for the time being. The valve holds it until another peristaltic wave makes another relaxation and thereby makes the delivery permanent.

For practical purposes, it may be stated that the ileocecal valve is formed by an intussusception of the end of the ileum through a hole in the side of the cecum plus excessive development of a flap of mucous membrane at its end. This intussusception is normally fixed and the valve should be competent. The valve is for the purpose of protecting the small intestine against the greater gas pressure formed by the bacterial digestion of the large intestine. In some cases of asthenia with marked constipation and gas dilatation of the cecum combined with reverse peristalsis the intussusception is reduced and the valve destroyed with the result that the fetid gas of the large intestine pushes back into the small intestine and in some instances reverse peristalsis of the small intestine seems to be established. In such cases an opaque enema travels upward even to the upper portion of the jejunum. Such patients often have a great deal of distress in the abdomen with marked evidences of general toxemia. Lane's ileosigmoidostomy for intestinal stasis produces this same result by the absence of the valve in that the greater intra intestinal pressure of the large bowel gradually distends the ileum no matter whether the distal ileum is excluded or not. The operation is unsatisfactory. Toxic symptoms are only temporarily relieved. An additional colectomy produces better functional results but is very dangerous and not desirable. Medical management is successful in most cases. In some instances, however

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It is necessary to shorten the supports of the ascending colon and suspend the transverse colon by omentum in order to bring the organs in proper position for food functioning. The medical treatment consists of increasing intra-abdominal pressure by fattening and appropriate exercises for strengthening the abdominal wall, increasing peristalsis and bowel action by paraffin, agar agar and bulky foods. Increased intra-abdominal pressure brought about by deposition of intra-abdominal fat counteracts the intravisceral gas pressure, allows the muscle fibers to shorten

and thicken, after which normal peristalsis is more easily established. In an individual with normal intra-intestinal pressure, normal intra-abdominal pressure, normal gastro-intestinal motility and bowel action, the ileocecal valve is not so essential and ileocolicostomy is not followed by abnormal dilatation of the ileum or troublesome reverse peristalsis into the distal end of the cecum as is seen in so-called stasis cases. In rare instances, it is necessary to restore the valve by reproducing the intussusception. Kellogg's method is very successful in some cases.

R. C. CORRY



MASTER SURGEONS OF AMERICA

ROSWELL PARK

DR PARK was born in Pomfret Connecticut in 1852. His father was a man of note having degree of Master of Arts from Union and Hamilton College and Doctor of Divinity from Norwich University. Later he was the founder of Racine College in Wisconsin. Dr Park's early years were spent in New England. He received his college degree in Racine College and his M.D. from Northwestern University. He was house surgeon in Cook County Hospital, Chicago. After filling various teaching positions in Chicago he went to Europe for post-graduate study.

This European trip had a very remarkable effect on his later life. It was just at the time medical Europe was greatly excited because of the work of Pasteur, Lister and finally Koch. He entered Koch's laboratory and there secured the foundation of his *Matter Lectures* in Philadelphia, which later played such an important rôle in spreading surgical pathology in America. When he returned to America he was an exceedingly well-trained man, and well fitted for his future career. The professorship of surgery in the University of Buffalo had just become vacant and by the most fortunate circumstances for Buffalo he was invited to the chair and accepted in the year 1883. He was destined to add further lustre to that long list of such eminent men connected with the University of Buffalo as Austin Flink, Frank Hamilton, John G. Dalton, James P. White, Hadley Whitthaus and Edward M. Moore.

At this time surgery was in a sorrowful condition. Infections were the usual result of any interference. Modern surgical pathology was almost unknown. Upon this dismal surgical scene in Buffalo appeared Roswell Park, young and vigorous, handsome, a good mixer, musical, and exceedingly well trained in his profession. There was no possible escape from the brilliant career which awaited him.

Dr Park was a prolific writer. His textbook by American authors largely written by himself was a two-volume work of which two editions were published. His *Modern Surgery* a single volume containing over eleven hundred pages published in 1907 stands today one of the most complete one volume works in surgery. An epitome of the history of Medicine and the Evil Eye were among his book publications. From the year 1882 until his death about one hundred

and fifty papers were written on timely subjects. In 1882 he wrote one of the very first papers in this country on antiseptics. In 1884 and 1885 he wrote a series of papers on tuberculosis giving accurately present-day description on bone tuberculosis. He was one of those who early insisted that pathological process in tuberculosis of bone and tuberculosis of lungs was one and the same. In 1888 he wrote a monograph on surgery of the brain which was one of our earliest publications on the subject.

Dr. Park was not gifted in research but read widely and developed a wonderful faculty of early recognizing the importance of new subjects. His very early papers on antiseptics, tuberculosis, X-ray and radium are wonderful examples.

As a teacher his fame was well deserved. No one attended his Clinic but went away impressed. He was very particular about correct English in his written and spoken word. His delivery was free and pleasant. He never failed to be entertaining by introducing a suitable story. His wide knowledge of the allied sciences served him well because of his ability to use that knowledge in illustrating strictly surgical subjects.

In the operative theater he was always a master. He had wonderful poise in the presence of difficulties. His technique was excellent, at a time when that was the unusual thing. He had excellent surgical judgment.

He worked untiringly for Buffalo institutions, the Buffalo General Hospital was almost his home. He devoted the best he had to make it one of the finest institutions of the kind in this country. The University of Buffalo was ever on his mind. Through many long weary years he struggled for a greater University in Buffalo. One of the sad things was he did not live to see the fulfillment of his efforts. Six years after his death twenty-four thousand citizens of Buffalo contributed over five million dollars—in ten days time—to establish that University for which he had worked so consistently.

In reviewing the work of such a man sufficient time has not elapsed to give one the proper perspective. His chief work will probably lie in promulgating the knowledge of—first antiseptics, and second the general principles of surgical pathology. Both of these subjects were fairly well understood in Europe but in those days America was not only a poor copier but a late one. His lectures on surgical pathology usually spoken of as the Muetter Lectures, did more to place the correct pathology of surgical disease before the American profession than any other publication with which I am familiar. His early publications on surgical tuberculosis, more particularly that of bone was far in advance of most other writings in America. Years later the profession was arguing whether these bone lesions were really the same process as occurred in the lung. In 1886 he did the first deliberate trephining in America where accurate localization was previously outlined. It was a case of cyst following hemorrhage and was operated in the Buffalo General Hospital.

Probably one of his greatest contributions to medicine will be found in his activity in founding the Gratiwick Laboratory. He was the first man to realize and put into practice the advantages of a thorough investigation of the problems relating to cancer. Through his efforts and those of his friends he was able to establish a small laboratory in this college for that purpose. The beautifully equipped laboratory and the handsome hospital known as the New York State Institute for the Study of Malignant Disease at 113 High Street is the end result. While others have since been more active in this work than he yet I believe the credit of starting it belongs to Dr. Park.

Most men have fads and hobbies which steal their time but he had few if any unless music might be so considered. He played the piano a little quite well. He with many others, gave freely of his time and money to start the first good concerts given in this city. He was president of the Philharmonic Society and under his regime the now famous May Festival was inaugurated. These were self-sacrificing undertakings, because almost invariably they were a financial loss. It was worth it however because I never knew any one to get such keen enjoyment out of a good concert as he and in later years when most things failed in interest his idol—music—still held him steadfast.

During his entire career he had a certain pride in buying books and often this trait made him the victim of the over zealous bookseller. In the end he developed a very highly prized library probably the equal of any private library in this section of the country. In it are many very rare books besides a really wonderful collection of surgical reference works for instance complete sets of *Annals of Surgery* and *Zeitschrift fuer Chirurgie* *Centralblatt fuer Chirurgie* *Archiv fuer Klinische Chirurgie* and *Index Catalogue of Surgeon General's Library*. This library is now by his will, the property of the University of Buffalo.

If we measure success by honors, the fates were exceedingly kind to him. At some time during his life he was president of the Academy of Medicine American Association for Advancement of Science State Society American Surgical Association Society of Natural Sciences the Buffalo Saturn University and Liberal Clubs. He was a member of the German, Italian and French Surgical Societies. He was the American representative on the international committee of the International Society from its inception up to the time of his death. He was appointed by Theodore Roosevelt a member of the visiting committee at West Point Military Academy. He received an honorary degree of M.D. from Lake Forest University A.M. from Harvard University and LL.D. from Yale. In 1890 he was called to the chair of Surgery in Rush Medical College but decided to continue in Buffalo. In 1903 on the twenty fifth anniversary of his professorship of surgery in the University of Buffalo the profession made him the guest of honor at a dinner which was a most remarkable gathering of about one hundred and fifty persons, including surgeons of note from the United States and Canada.

He was given a beautiful loving cup, and later a handsome volume was edited as a memorial of the dinner.

His personality was remarkable and his self-control under trying circumstances was the wonder of all who knew him. His courtesy to all was never failing. He was a good friend, admired by all, loved by many, and hated by none. His personal influence upon the young men of the community was not to be measured lightly, and his standard of honor wielded a power for good, far beyond the privilege of most men. While his surgical influence was the greatest possible, I firmly believe his greater good lay in his ability to train those around him to be real honorable, upright gentlemen. His influence in this particular will live on and on, and will ever hold memory dear, far beyond the mere passing of a great man.

FRANK R. MCGUIRE

CORRESPONDENCE

AMPUTATION STUMPS AND THEIR ADAPTATION TO ARTIFICIAL LIMBS

To the Editor The article with the above title in the April, 1922 issue of SURGERY GYNECOLOGY AND OBSTETRICS by Dr. Carl Bearse gives us I believe most of the important points that we gained from our experience with amputation cases during the war. It affords me much pleasure to support practically all of his arguments. There are one or two points, however, in regard to which

I think we must say that our war experiences led us to a somewhat different conclusion. Also I wish to emphasize much more than he does the importance of the early use of the temporary leg or pylon, and to illustrate by photographs a method by which this temporary leg may be used.

First of all I believe we should object to amputation through the knee joint. In the few such



Fig. 1. Mr. M. Double leg amputation, December 1918.

Fig. 3.

Fig. 4.

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EDGAR R. MCGUIRE

TRANSACTIONS OF SOCIETIES

CHICAGO SURGICAL SOCIETY

REGULAR MEETING HELD MAY 5 1922 DR. DEAN D. LEWIS PRESIDING

EXSTROPHY OF THE BLADDER

Dr. JACOB FRANK. More than 25 years ago I made some experiments on animals in treating exstrophy of the bladder.

showed that in every case where the anastomosis was made to the bowel, there was ascending infection. After making vesicorectal anastomosis in the dog a year later I brought the dog before the Chicago Medical Society. Dr. Hertzog made the bacteriological studies, and it was found that where vesicorectal anastomosis was made and the openings of the ureters were not destroyed the kidneys were sterile.

These specimens are now in a museum in Paris.

could not urinate through the natural channel, they squatted down like a bitch and urinated through the rectum. The act of urination and of defecation was controlled separately.

As long as the openings in the ureters are intact the kidneys may remain sterile. Where the openings are destroyed the kidneys are absolutely infected in all cases.

RECURRENCES FOLLOWING OPERATIONS FOR INGUINAL HERNIA

Dr. William Hensert discussed recurrences following operations for inguinal hernia. (See p. 431.)

DISCUSSION

knows. There is a reluctance on the part of many patients to return to their surgeons after unsuccessful herniotomies to complain that the work was not satisfactory. Other patients move away or for various reasons find it more convenient to consult other surgeons, or possibly none at all.

The status of this question will reveal itself to any one consulting from time to time the surgical instrument makers and truss manufacturers, as I have made it my business to do the past few years. They tell me that almost daily somebody whose hernia operation was not a success applies to them for a truss. Frequently emphasis has been laid upon the

wander away and go to other surgeons.

As I see it, there is no single factor that will fully explain the failure to cure a hernia. It seems to me that it may be one of many factors. It may be due to a low ligation of the hernial sac, although Coley disputes this, or did it may be due to ligatures and sutures tied too tightly or too loosely, to wound infection or one that heals unkindly, or to a patient's leaving his bed too early and returning to the kind of work which had much to do with the production of his hernia.

Dr. Van Sweringen and I did several hundred

3. usually with herniotomies proved prompt failures. Again hernias were met with where structural development was not complete, where the operations did not go so well, the wounds healed less kindly, some even becoming infected, yet many of these hernias did not recur.

Dr. Hensert has long dwelt upon the occasional absence of the conjoint tendon, an observation I have not made due probably to oversight or lack of proper care. The conjoint tendon is a more conspicuous structure in some patients than others.

cases I saw, the stump was always satisfactory and the application of any leg extremely difficult.

Another point with reference to the selection of the site for amputation is that arm stumps and above knee stumps should in general be as long as possible. Even when it is necessary to depend upon skin retraction to cover the end of the bone as much bone should be saved in these stumps as can be. So much of the usefulness of artificial limbs is

covering the end of the bone or in the matter of

when the bone is

bucket temporary leg or pylon this is something

Major I saw p. D. Wilson was in charge of the amputation cases. Hundreds of these

was first for the wearing of the regulation leg with a stick later in amputations close to the knee such a bucket above the knee with the leg ex

mitted here with the amputation was done by

The other case has quite a different history. He was amputated in February 1903. He had a dislocation of the hip which was not reduced until



Fig. 5. Case of application of pylon and leg cast

Fe
lur
of
limited to walk on crutches and made a effort to use the artificial leg until March. The artificial limb was never of a use for weight bearing. In the meantime he developed a badly pronounced foot on the other leg. He was given an anesthetic on March 10, 1904.

BOOK REVIEWS

A CRITIQUE OF NEW BOOKS IN SURGERY

SURGICAL complications of dysentery are not frequently encountered in this country possibly because those types of bowel infections which usually cause complications are comparatively rare here nevertheless the possibility should be constantly kept in mind. The average textbook records the various pathological conditions which

experience in the Orient in caring for many cases of bowel infections. The frequency of liver abscess with its symptomatology, pathology and treatment is the more essential portion of the work and it is worth any medical man's time and effort to read this as it refreshes his memory as to the insidious course of this condition. We are no doubt seeing more and more cases of disseminated infection, associated with multiple and deep-seated abscess formation, many of them going unrecognized and found only at autopsy. A more careful and painstaking study of the possibilities might lead to more frequent correct diagnosis.

Arthritis as the author indicates, is not an unusual complication of a bowel infection. This in itself should cause us to consider to a greater extent a possible etiology for our rather numerous cases of chronic arthritis, and not to pass over the subject of the intestines in the usual superficial manner. This little volume is truly food for thought.

J. A. WOLFE

PROBABLY no European surgeon is more respected and honored in this country than Moynihan. His surgical judgment and technique are re-

less adopted views, in the end one is convinced that he is right.

In answer to many requests by friends, there is at hand a little volume of essays by Moynihan. It comprises a series of addresses delivered in the past few years on subjects most vital to the medical profession. For the most part these essays are a general statement of conceptions by the author

most instructive articles in print today. It is most comforting to find a man who has the conviction and courage to dispute the apparently promiscuous diagnosis of gastric ulcer which is so commonly tabulated in lengthy statistics along with the very large percentage of cures by medical means. No doubt the operative means has been

to verify his many instances of chronic gall than from ulcer. The question can rightly be raised as to the value of statistics on gastric ulcer which

this little volume contains nine essays, each a treasure. The subject matter is not given in the ordinary stereotype manner but in the author's characteristic way and it is an unusual pleasure even for the experienced surgeon to read this little work.

J. A. WOLFE

Entered as Second-Class Matter, May 1908, at New York, N. Y., under No. 100,000. Accepted for mailing at special rate of postage provided for in Act of October 3, 1917, authorized on July 1, 1920.

SCIENTIFIC SERIES OF DYSENTERY (INCLUDING LIVER ABSCESS) BY
Zachary (Capt. R.A., M.D. M.S. (Lond.) F.R.C.S. (Eng.)) London
Oxford University Press, 1920.

employ. Nothing will probably lead the average surgeon into trouble and disappointment more quickly than the employment of "methods" and then nowhere more quickly and decidedly than in his operations for hernia.

DR VERNON C. DAVIS. I desire to mention one

usually those likely to appear in the lower part of the

to that environment or employment which might

hernia into the abdomen and imbricate the free portion of peritoneum over it, so that the hernia is reduced by imbrication on the sac itself. That has been of great assistance to me in difficult sliding hernia.

Dr E. S. JUMP, Rochester, Minnesota, read a paper (by invitation) entitled "Ulcer of the Duodenum."

Dr. A. J. OCHRYZAK read a paper entitled "Renal Calculus in the Pelvis of a Floating Kidney with the other Kidney Absent."

Dr. HARRY JACOBSON read a paper entitled "The Circulation of the Cerebrospinal Fluid and Its Relation to Acute Jaundice of the Brain."

struction, which has been pronounced by visiting experts to be as good as anything in the country. The new Thorndike Laboratory will be open for inspection, and perhaps in active operation, in the latter part of October. The X-ray apparatus at present being installed is unexcelled. A great proportion of the traumatic surgery of Boston comes to the City Hospital, and the fracture clinic is enormous. Henceforth, whatever the hour it enters, every fracture may be examined and reduced and put into apparatus under direct radioscopic observation.

The Peter Bent Brigham Hospital, in the newer part of Boston, on the edge of the park system and the town of Brookline contains about 250 beds. It is one of the most recent of Boston hospitals.

by the trustees of the hospital physician in chief and surgeon in chief respectively. This hospital is closely affiliated with the Harvard Medical School which it adjoins.

The Robert Brigham Hospital, on Parker Hill, for the care of chronic disease is at present under the administration of the United States. The

intensive study and treatment of malignant growths. It contains about 35 beds and has also an outpatient department.

The Boston Lying-In Hospital, on Blossom Street, near the Massachusetts General Hospital, has at present about 50 beds, but is soon to occupy a spacious and adequate new building on Longwood Avenue, directly opposite the Medical School. In 1920 more than a 1,000 patients were delivered in the hospital, and about 1,300 in their own homes by the hospital externs.

The Boston Dispensary on Bennett Street contains a well-equipped ward of 30 beds for children, but does most of its work in its outpatient department and by visits to patients' homes. One hundred and fifty thousand visits were made in 1920.

The Children's Hospital, adjoining the Medical School, possesses an admirable plant of about 250 beds. Nearly 5,000 ward patients and more than 40,000 outpatients were treated during the past year.

The Massachusetts Charitable Ear and Eye Infirmary on Charles Street near the Massachusetts General Hospital is one of the largest institutions of its kind in the world. It contains more than 300 beds, treats in the wards 4,500 patients, and receives 75,000 visits from outpatients each year.

The United States Naval Hospital recently

175 beds
it is built
& fortified
1775 By

1,300 beds

The New England Hospital for Women and Children is pleasantly situated on spacious grounds in Roxbury. It has 275 beds, and its active staff is composed exclusively of women doctors.

The Fourth Infirmary a very beautiful and

years
The Massachusetts Homeopathic Hospital on East Concord Street was founded in 1855. It is

The Colby P. Huntington Memorial Hospital, erected by the Cancer Commission of Harvard University on the grounds of the Medical School, affords clinical and laboratory facilities for the

department. It is beautifully situated on the edge of the Boston park system, near Brookline village.

St. Elizabeth's Hospital, in Brighton, possesses a new and very satisfactory plant and contains about 200 beds. Its outpatient department is large and well outfitted.

Bolivia Dr Olympeo da Fonseca of Rio de Janeiro Brazil Dr Gregorio Amatoegui and Dr Lucas Sierra of Santiago Chile Surgeon-General Alberto Adrianola and Dr Guillermo E. Moennich of Valparaiso, Chile Dr Pomplio Martinez of Bogota Colombia Dr Francisco Graña of Lima, Peru Dr Enrique Pouey of Montevideo, Uruguay and Dr Loma Razzetti of Caracas, Venezuela

HEADQUARTERS

General headquarters for the Congress will be at the Copley Plaza Hotel, which is centrally located in the Back Bay district. The large ballroom of the hotel, foyers adjacent thereto with other large rooms on the main floor have been reserved for the use of the Congress, affording ample space for registration and ticket bureaus, bulletin rooms, etc.

Headquarters will be open for registration at 12 M Monday October 22. The clinical program for Tuesday will be bulletined during the afternoon, and tickets for Tuesday's clinics will be issued as visiting surgeons register.

REDUCED RAILWAY FARES

The railways of the United States and Canada

provide a special train leaving Chicago at 9 15 a m Sunday October 22 arriving in Boston at 10 a m Monday. This special train will duplicate the equipment of the "Twentieth Century" including standard Pullman sleeping compartment, club observation, and dining cars. No extra fare will be charged for passage on the special train, and members are urged to make their reservations therefor at the earliest possible date. This arrangement is contingent upon reservations for such special train being made by the minimum number required by the Interstate Commerce Commission rules.

LIMITED ATTENDANCE—ADVANCE REGISTRATION

Because of the popularity of these annual clinical meetings it has been found necessary in

lecture rooms, and laboratories of the several hospitals and medical schools as to their capacity for accommodating visitors. This plan requires registration in advance on the part of all who expect to attend and when the limit of attendance has been reached through such advance

only upon presentation of identification certificates issued from the office of the Director General. Such identification certificates will be issued to all who register in advance on such date as and from October 19 to 25 in the central and eastern states, and eastern Canada, with a final return limit of November 3.

In the far western states and the western provinces of Canada the earliest selling date is October 18 with a return limit of November 3.

The reduction in fares does not apply to Pullman fares or to excess fares charged for passage on certain trains. Local railway ticket agents will supply detailed information with regard to rates, routes, etc.

SPECIAL TRAIN FROM CHICAGO TO BOSTON

For the convenience of members from the West who will attend the meeting in Boston, the New York Central Railroad will undertake to

weeks in advance of the meeting.

CLINIC TICKETS

Attendance

is
TI
for

among the several clinics and insures against overcrowding. The number of tickets issued for any clinic is limited to the capacity of the room in which that clinic is to be given. Tickets are issued at headquarters each morning at 8 o'clock.

Each afternoon during the session, a complete program of the following day's clinics will be posted on bulletin boards at headquarters. After the program has been so posted, reservations for tickets for the next day's clinics may be filed. The clinic tickets to be issued the following morning at 8 o'clock. A printed program will be issued each morning which will contain the complete clinical program for the day with announcement of evening sessions and other information.

Besides these there are the Boston State Hospital of about 3,000 beds, near Franklin Park for nervous and mental cases, the MacLean Hospital with 200 beds, a part of the Massachusetts General Hospital, for similar cases, the Long Island Hospital, with 500 beds, in Boston Harbor, for the care of the chronic sick of the city, the Good Samaritan Hospital near the Medical School and the Boston Psychopathic Hospital for the observation of acute, chronic, incipient, and doubtful cases of mental disease.

THE CLINICAL CONGRESS IN BOSTON

IN a general way the plans for the twelfth annual session to be held in Boston October

It is obvious from the foregoing which by no means exhausts the list, that Boston does not lack efficient hospitals. Other institutions of great interest are the Boston Medical Library and Harvard, Tufts, and Boston University Medical Schools. The Boston Medical Library, the third medical library in point of size in the

the minimum standard of the College will be released on this day.

The presidential meeting—the first formal

fill the morning and afternoon hours of each of

scope of the clinical work to be demonstrated

strations to be given in the several hospitals, laboratories, and schools.

The Committee on Arrangements plans to provide a program that will completely represent the clinical activities of that great medical center. All departments of surgery will be represented including gynecology, obstetrics, orthopedics, urology, surgery of the eye, ear, nose, throat and mouth, experimental surgery, surgical pathology, roentgenology, etc. An outstanding feature of the clinical program will be a series of special demonstrations that have been arranged in several of the hospitals in which members of the medical staff will participate.

On Monday morning at 9:30 and at 2:30 in the

the Henry Jacob Bigelow medal to Dr. William

instructive feature and it is expected that a further discussion of these matters will add to the interest in this department of the College work. The annual approved list of hospitals which on inspection, fulfill the requirements of

program for all of the evening sessions will be found in the following pages.

The following distinguished Latin-American surgeons are expected to attend the Clinical Congress. Dr. José E. Casero, Dr. José A. Fresno, and Dr. Rafael Menocal of Havana, Cuba; Dr. Gabriel M. Alakda and Dr. Ulises Vakkas of Mexico; Dr. José Arco of Buenos Aires, Argentina; Dr. Claudio J. Sanjines of La Paz.

Bolivia Dr Olympio da Fonseca of Rio de Janeiro, Brazil Dr Gregorio Amunategui and Dr Lucas Sierra of Santiago, Chile Surgeon-General Alberto Adriano and Dr Guillermo E. Moennich of Valparaiso Chile Dr Pompilio Martinez of Bogot4, Colombia Dr Francisco Gr6n6 of Lima, Peru Dr Enrique Pouey of Montevideo, Uruguay and Dr Louis Razetti of Caracas, Venezuela.

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hospitals and medical schools as to their capacity for accommodating visitors. This plan requires registration in advance on the part of all who expect to attend, and when the limit of attendance has been reached through such advance

dates issued from the office of the Director General. Such identification certificates will be issued to all who register in advance, one certificate being sufficient for the individual surgeon and dependent members of his family. Under this arrangement round-trip tickets will be sold from October 19 to 25 in the central and eastern states, and eastern Canada, with a final return limit of November 2.

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plan will be apparent to all. There has been a very large advance registration and it is probable that the limit of attendance will be reached some weeks in advance of the meeting.

CLINIC TICKETS

Attendance at all clinics and demonstrations is controlled by means of special clinic tickets. This has proven an efficient means of providing for the distribution of the visiting surgeons among the several clinics, and insures against overcrowding. The number of tickets issued for any clinic is limited to the capacity of the room in which that clinic is to be given. Tickets are issued at headquarters each morning at 8 o'clock.

Each afternoon during the session, a complete program of the following day's clinics will be posted on bulletin boards at headquarters. After the program has been so posted, reservations for tickets for the next day's clinics may be filed. The clinic tickets to be issued the following morning at 8 o'clock. A printed program will be issued each morning which will contain the complete clinical program for the day with announcement of evening sessions and other information.

PROGRAM FOR EVENING MEETINGS

Presidential Meeting Monday October 23—Symphony Hall 8 P.M.

Address of Welcome LINCOLN DAVIS, M.D. Boston, Chairman of Committee on Arrangements

Address of the retiring president. JOHN B. DEWEY, M.D. Philadelphia.

Introduction of foreign guests. RAFFAELLE BASTIANELLI, M.D. F.R.C.S. (Hon.) Rome. FRANCIS SEYMOUR KIDD, M.Ch. F.R.C.S. London. ANDREW FULLERTON, C.B. C.M.G. Belfast. ERNEST KEY, M.D. Stockholm.

Inaugural Address HARVEY CUSHING, M.D. Boston.

The Doctor John B. Murphy Oration in Surgery—Surgery of the Joints. RAFFAELLE BASTIANELLI, M.D. F.R.C.S. (Hon.) Rome.

Tuesday October 24—Jordan Hall 8 P.M.

ERNEST KEY, M.D. Stockholm. Treatment by Embolectomy of Circulatory Disturbances in the Extremities Due to Emboli.

SYMPOSIUM Genito-Urinary Surgery

HUGH H. YOUNG, M.D. Baltimore. Prostatectomy—Preparatory, Operative, and Postoperative Methods.

FRANCIS SEYMOUR KIDD, M.Ch. F.R.C.S. London. Simple Mesodermal Tumors of the Urinary Bladder with the Report of a Case Treated by Operation.

ANDREW FULLERTON, C.B. C.M.G. Belfast. A Note on Unilateral Diurnal.

J. BENTLEY SQUIER, M.D. New York. The Surgery of Vocal Neoplasms.

Discussion. WILLIAM C. QUINCY, M.D. Boston, ALEXANDER RAYBURN, M.D. Philadelphia, JOHN T. GERAGHTY, M.D. Baltimore, JOHN H. CROOKINGHAM, M.D. Boston.

Wednesday October 25—Jordan Hall 2.30 P.M.

SPECIAL MEETING OF THE BOSTON SURGICAL SOCIETY

Introductory Remarks ROBERT W. LOVETT, M.D. Boston, President.

Presentation of Henry J. Bigelow Medal to WILLIAM WILLIAMS KEEN, M.D. Philadelphia. Sixty Years Ago—1861 to 1921." WILLIAM WILLIAMS KEEN, M.D. Philadelphia.

Thursday October 26—Jordan Hall 8 P.M.

SYMPOSIUM Carcinoma of the Jaws, Tongues, and Cheeks and Lips.

GEORGE W. CRILE, M.D., Cleveland. General Principles Involved in Operations. Summary of Results treatment of Carcinoma of the Jaws and Lips Obtained in the Mayo Clinic, with

GEORGE W. CRILE, M.D., Cleveland. Summary of Results Obtained in the Presbyterian, Memorial, and Roosevelt Hospitals of New York, with Special Reference to Treatment of Cancer of the Cheeks and Lips.

Discussion. ROBERT B. GREENOUGH, M.D. Boston, ALBERT J. OCHSNER, M.D. Chicago, VILRAY P. BLAIR, M.D. St. Louis, JOSEPH C. BLOOMGOOD, M.D. Baltimore, DOUGLAS QUICK, M.D. New York, GEORGE F. MULLER, M.D. Philadelphia, HARVEY R. GATLAND, M.D. Buffalo, ALEXANDER E. GARROW, M.D. Montreal, CHANNING C. SIMMONS, M.D., Boston.

Friday October 27—Symphony Hall 8 P.M.

CONVOCATION OF THE AMERICAN COLLEGE OF SURGEONS

Innovation. D. — — —

Presidential Address HARVEY CUSHING, M.D. Boston.

Fellowship Address RAFFAELLE BASTIANELLI, M.D. F.R.C.S. (Hon.) Rome.

HOSPITAL CONFERENCE

MONDAY, OCTOBER 23, IN JORDAN HALL

Morning Session 9:30 to 12:30

JOHN B. DEAYNE, M.D., F.A.C.S., President, Presiding

Report on the Standardization Activities of the College in 1922

FRANKLIN H. MARTIN, M.D., F.A.C.S., Director-General, American College of Surgeons

The Doctor and the Hospital

FREDERIC A. WASHBURN, M.D., Superintendent, Massachusetts General Hospital, Boston

The Minimum Standard and Its Application to Hospitals

FREDERICK W. STONE, M.D., Hospital Standardization Department, American College of Surgeons

What Real and Lasting Benefit Has Come to the Patient from Hospital Standardization?

CHARLES B. MOUTRIER, S.J., President, Catholic Hospital Association

The American Hospital

A. R. WARREN, M.D., Executive Secretary, American Hospital Association

Hospital Standardization from a Public Health Standpoint

D. A. CRAIG, M.D., Provincial Commissioner, Nova Scotia Division, Canadian Red Cross, Halifax, Nova Scotia

Hospital Standardization from the Viewpoint of the Medical Staff

R. A. HUNTER, M.D., Moncton, New Brunswick

Spotlights on Hospital Standardization

ROBERT JOLLY, Superintendent, Baptist Hospital, Houston, Texas

The Analysis of End-Results

FREDERICK H. POOL, M.D., F.A.C.S., New York, and E. V. COOPER, M.D., F.A.C.S., Boston

General Summary of Hospital Standardization

MALCOLM T. MACLEACH, M.D., C.M., Director-General, Victorian Order of Nurses for Canada

Afternoon Session 2 to 4:30—General Round Table Discussion

Conducted by MALCOLM T. MACLEACH, M.D., C.M.

committees

- I
- 1 The initial organization of the staff conference
- 2 The agenda and detailed description of the staff conference
- 3 Methods of stimulating interest and enthusiasm in staff conferences
- 4 Monthly analysis of hospital work
- II Case Record
 - 1 The component parts of a case record
 - 2 Methods of securing the records
 - 3 Methods of stimulating increased interest in the records
 - 4 The hospital historian or record-clerk
 - 5 Long system, card index, office memoranda, and follow up system
- III Laboratories and X-ray facilities

3

4

5

6

7

physicians

- 5 To what extent can X-ray facilities outside of the hospital be used satisfactorily?

24 Miscellaneous

- What points in particular should the hospital survey or investigator in making his annual visit?
- Making the public understand the value of hospital standardization
- 2 Methods of measuring the efficiency of the hospital survey of the College

Phay O. Clark, President, Protestant Hospital Association
 H. E. Webster, Superintendent, Royal Victoria Hospital,
 Montreal

Matthew O. Foley, Managing Editor, Hospital Management, Chicago
 S. S. Goldwater, M.D., Superintendent, Mt. Sinai Hospital, New York City
 Joseph J. Weber, Editor, Modern Hospital, Chicago
 Frank E. Chapman, Superintendent, Mt. Sinai Hospital, Cleveland

I

eral Hospital Association

PRELIMINARY CLINICAL PROGRAM FOR BOSTON MEETING

MASSACHUSETTS GENERAL HOSPITAL

Friday, October 24

C. A. PORTER, G. W. W. BREWSTER, R. B. GREENOUGH,
 HUGH WILLIAMS, and associates—*General surgery*

and

D. F. JONES—*Pancreatic*
 W. J. MYERS, J. B. AYER, and JOHN S. HODGSON—*Genito-urinary*

Genito-urinary

Saturday, October 25

Orthopedic Operations and Demonstrations—

SMITH PIERCE—*Arthrodesis of sacro-spine joint*
 M. H. ROONEY—*Arthrodesis of hip joint*
 L. B. ASHES—*Reduction of congenital dislocation of the hip*
 R. B. OSOON—*Excision of semilunar cartilage or removal of knee joint*
 D. F. JONES—*Excision of knee joint*

Demonstration of Orthopedic Cases—

Thursday, October 26

D. F. JONES, LINCOLN DAVIS, E. P. RICHMOND, and associates—*General surgical operations*

Staff Clinic Symposium on Malignant Diseases—

R. B. GREENOUGH—*Malignant disease introductory remarks*

D. F. JONES—*Cancer of the rectum*

R. B. GREENOUGH—*Cancer of the breast*

D. C. GRACE—*Cancer of the stomach*

LINCOLN DAVIS and G. A. LILLARD—*Cancer of the uterus*

CHARLES SIMMONS—*Osteogenic sarcoma*

O. W. HOLMES—*X-ray as prophylactic and in palliative treatment*

H. P. MOORE—*Cancer of the esophagus*

C. L. SCOTT and H. F. HARRIS—*Cancer of the stomach*

Friday, October 27

R. B. GREENOUGH and D. F. JONES—*General surgical operations*

J. D. BARNET and associates—*Genito-urinary operations*

Surgical Clinic by Staff—

J. D. BARNET—*Pneumopneumography as an aid in diagnosis*

G. G. SMITH—*Treatment of cancer of the penis*

R. F. O'NEILL

E. G. CHAMBERLAIN—*Surgical approach of the lower end of the ureter*

H. H. CHAMBERLAIN—*Experiences with stone in the lower ureter*

G. G. JONES—*Methods of demonstrating tubercle bacilli in the urine*

D. F. JONES and associates—*Standardized treatment of fractures*

BOSTON CITY HOSPITAL

Thursday, October 28

F. B. LYNN—*General surgical operations*

E. B. LYNN—*Gynecological operations*

J. C. HARRIS and associates—*Dry clinic (general surgery)*

O. J. HARRIS—*Intestinal gunshot wounds*

E. B. LYNN and associates—*Series and result in amputations*

- G. L. Vogel and associates—2. Ear and throat cases
 L. M. Friedman—2. Carcinoma of soft palate and larynx
 E. J. Monahan—1. Tonsillectomy in acute disease

Wednesday, October 25

- J. C. Hurnam and associates—9. General surgical operations
 G. L. Vogel and associates—9. Ear and throat operations
 F. D. Leno—3. Demonstration carcinoma of stomach carcinoma of tongue facial nerve anastomosis, results of operation.
 I. J. Walker—3. Echinococcus cyst of liver resection of stomach, three cases, oral cancer radium, three cases
 Stephen R. Mallett and W. H. Canavan—2. Cases of dental surgery

Thursday, October 26

- H. A. Lotzner and associates—9. General surgical operations
 Paul Thomsen and associates—9. Gastro-intestinal operations

Friday, October 27

- F. J. Corry and associates—9. General surgical operations
 H. A. Lotzner and associates—4. Demonstration of surgical cases.
 Horace Flörvén—2. Gangrene of the lung, abscess of the lung, separation of the lower epiphysis of the femur certain type of fracture of the forearm
 A. R. Kinnison—1. Tumor of carotid body
 H. B. Stevens and associates—2. Ophthalmic surgery
 J. J. Conner—2. Series of cataract operations

CHILDREN'S HOSPITAL

Tuesday, October 24

- R. W. Lovett and associates—9. Orthopedic operations
 Surgical Staff Clinic—9

all cases with feature clinics

ations

Orthopedic Staff Clinic—

- Robert Soutter—Obstetrical paralysis
 A. T. Leno—Pathology and treatment.
 J. W. Sevier
 J. H. Fitzsimmons—Clubfoot
 K. F. Orr—Treatment and operative

1

polio) clinic

- F. R. Blumhert—9. Cases of orthopedic
 J. S. Stone and associates—9. General surgical operations
 R. W. Lovett and associates—2. Orthopedic operations

Surgical Staff Clinic—1

all cases with feature clinics

114

Thursday, October 26

- R. W. Lovett and associates—9. Orthopedic operations
 Surgical Staff Clinic—9
 T. H. Leno—9. Skin graft
 W. E. Leno—9. Cases of plastic surgery
 G. D. Cottle—9. Ruptured kidney
 C. G. Myer—9. Tumors of the kidney chronic pyelitis
 James S. Stone and Oscar M. Schlow—9. Throat abscess and quinsy
 D. Cherry Greene—9. Cases of laryngeal and oropharyngeal structures
 J. S. Stone and associates—2. General surgical operations
 R. W. Lovett and associates—2. Orthopedic clinic
 Congenital dislocations of hip, results of operative treatment Legg-Calve disease pathology and treatment relief of contracture of the hip

Friday, October 27

- J. S. Stone and associates—9. General surgical operations
 R. W. Lovett and associates—9. Orthopedic clinic
 Infantile paralysis, results in treatment clasp muscle and tendon transplantation, the result of treatment, transplantation of the tensor fasciae latae for paralysis of the abductors
 R. W. Lovett and associates—1. Orthopedic operations
 Surgical Staff Clinic—2.
 W. E. Leno—Infarction
 C. G. Myer—Infarction obstruction
 G. D. Cottle—Infarction obstruction by Meckel's diverticulum
 J. S. Stone and O. M. Schlow—Atypical cases of appendicitis in children, differential diagnosis

MASSACHUSETTS HOSPITAL

Thursday, October 24

- J. Benson Briggs and W. S. K. Thomas—9. Surgery of the stomach, operations
 D. W. Wells and associates—9. Operations on the eye
 A. G. Howard—9. Orthopedic
 Conrad Smith—9. Nose and throat clinic
 D. W. Wells—9. Eye clinic
 S. W. Ellsworth—9. Lesions of the gastro-intestinal tract
 C. T. Howard and W. S. K. Thomas—9. General surgical operations
 A. W. Ross and W. L. McDermott LL—9. Vital function tests in relation to surgery

Wednesday, October 25

- T. E. Chandler and H. J. Lee—9. Gynecological operations
 Conrad Smith, E. R. Johnson, and C. W. Brown—9. Nose and throat operations
 A. G. Howard—9. Demonstration back strain
 T. E. Chandler and H. J. Lee—9. Gynecological operations
 A. S. Leno and F. H. Pratt—9. Anatomical and physiological demonstration

Thursday October 26

- C. T. HOWARD and CLARENCE CRACK—*g* Surgery of the larynx tract
 F. W. COLBERT and H. L. BARCOCK—*g* Operations on the ear
 A. G. HOWARD—*g* Orthopedics
 CONRAD SMITH—*g* Nose and throat clinic
 b. W. ELLIOTT—*g* Demonstration. Some points in differential diagnosis of diseases of bones

Friday October 27

- A. G. HOWARD—*g* Orthopedic operations
 D. W. WELLS—*g* Eye clinic
 R. C. WOOD—*g* Genito-urinary surgery operative clinic

FREE HOSPITAL FOR WOMEN

Tuesday October 24

- W. P. GRAVER, F. A. PIERBERTON and R. G. WADSWORTH—*g* Gynecological operations

Wednesday October 25

- W. P. GRAVER and F. A. PIERBERTON—*g* Gynecological operations
 W. P. GRAVER—*g* Clinic on prolapsus recti and cancer of the cervix

Thursday October 26

- W. P. GRAVER, F. A. PIERBERTON, and H. W. BAKER—*g* Gynecological operations
 F. A. PIERBERTON—*g* Clinic on diseases of the female rectum

CARNEY HOSPITAL

Tuesday October 24

- H. L. JOHNSON and L. E. PRANEY—*g* Gynecological operations
 L. E. PRANEY—*g* Gynecological clinic

Wednesday October 25

- J. T. BOTTOMLEY, D. F. MANNING and A. MCK. FEMME—*g* General surgical operations
 C. M. PROCTOR—*g* Oral surgery
 W. E. BROWN—*g* End results and demonstration of traumatic hands

Thursday October 26

- W. R. MACAULAND and A. R. MACAULAND—*g* Orthopedic operations
 W. R. MACAULAND and A. R. MACAULAND—*g* Orthopedic demonstrations

Friday October 27

Fr. ser.
 xmc, and

PETER BENT BRIGHAM HOSPITAL

Tuesday October 24

- HARVEY CURRING, W. C. QUINCY, DAVID CHREEVER, JOHN HOSMAN, and F. C. CUTLER—*g* General surgical operations
 DAVID CHREEVER, JOHN HOSMAN, E. C. CUTLER, and F. C. NEWTON—*g* Clinical demonstrations and talks (general surgical cases)

Wednesday October 25

- HARVEY CURRING, W. C. QUINCY, DAVID CHREEVER, JOHN HOSMAN, and E. C. CUTLER—*g* General surgical operations
 HARVEY CURRING, GILBERT HERRAY, and PERCIVAL BAILEY—*g* Clinical demonstrations in neurological surgery

Thursday October 26

- HARVEY CURRING, W. C. QUINCY, DAVID CHREEVER, JOHN HOSMAN, and E. C. CUTLER—*g* General surgical operations
 W. C. QUINCY, ROGER GRAVER, and J. J. JOELSON—*g* Clinical demonstrations in genito-urinary surgery

Friday October 27

- HARVEY CURRING, W. C. QUINCY, DAVID CHREEVER, JOHN HOSMAN, and E. C. CUTLER—*g* General surgical operations

ST ELIZABETH'S HOSPITAL

Tuesday October 24

- ARTHUR CHUTE—*g* Genito-urinary operations
 ARTHUR CHUTE—*g* Genito-urinary operations

Wednesday October 25

- JOSEPH SEANTON and HENRY ROWSE—*g* General surgical operations
 GEORGE KERNAN and FRANK JAVIER—*g* General surgical operations

Thursday October 26

- General sur.
 General sur.

Friday October 27

- THEODORE BROOKHUIS—*g* Orthopedic operations
 CHARLES KUCHERAN—*g* Gynecological operations and obstetrical ward int.

BOSTON LYING-IN HOSPITAL

Tuesday October 24

- R. S. EASTON—*g* Hemorrhagic disease of the newborn
 DONALD MOWEN—*g* Intracranial hemorrhage in the newborn

Wednesday October 25

- F. S. NEWELL—*g* Cesarean section under local anesthesia
 F. C. IRVING—*g* Abdominal abortion with sterilization
 R. E. HAMILTON—*g* Cardiac complications of pregnancy

Thursday October 26

- F. S. NEWELL—*g* Cesarean section.

- O L. VOGLT and associates—*Ear and throat cases*
 L. M. FRIEDMAN—*2. Carcinoma of soft palate and larynx*
 E. J. MORGAN—*2. Tonsillotomy in acute disease*

Wednesday, October 25

- J. C. HARRIS and associates—*General surgical operations*
 G. L. VOGLT and associates—*Ear and throat operations*
 F. B. LLOYD—*Demonstration carcinoma of stomach carcinoma of tongue facial nerve anastomosis, results of operation*
 I. J. WALKER—*Echinococcus cyst of liver resection of stomach, three cases oral cancer trachea, three cases*
 STEPHEN B. MASIETI and W. H. CALVERT—*2. Cases of dental surgery*

Thursday, October 26

- II. A. LOTTEROP and associates—*General surgical operations*
 PAUL THOMPSON and associates—*Genito-urinary operations*
 F. J.

F. J.

Friday, October 27

- F. J. COTTON and associates—*General surgical operations*
 II. A. LOTTEROP and associates—*Demonstration of surgical cases*
 FLORENCE BRUNET—*Gangrene of the leg, abscess of the leg, separation of the lower epiphysis of the*

CHILDREN'S HOSPITAL

Tuesday, October 24

- R. W. LOVETT and associates—*Orthopedic operations*
 Surgical Staff Clinic—
 W. E. LADD—*Hernia cases (with lantern slides)*
 C. G. MITCHELL—*Unfused ribs*

ations

Orthopedic Staff Clinic—

- ROBERT SCOTT—*Obstetrical paralysis*
 A. T. LADD—*Pathology and treatment*
 J. W. SEVER—
 J. H. FRANKLIN—*Clubfoot*
 R. F. CHICK—*Treatment and operation*

A.

poisoning cases.

- F. R. BLUMBERG—*Cases of orthopedics*
 J. S. STONE and associates—*General surgical operations*
 R. W. LOVETT and associates—*Orthopedic operations*

Surgical Staff Clinic—

Thursday, October 26

- R. W. LOVETT and associates—*Orthopedic operations*
 Surgical Staff Clinic—
 T. H. LADD—*Skin grafts*
 W. E. LADD—*Cases of plastic surgery*
 G. D. COTTER—*Ruptured kidney*
 C. G. MITCHELL—*Tumors of the kidney chronic pyelitis*
 JAMES S. STONE and OSCAR M. SCHLOSS—*Typhoid ulcers and abscess*
 D. CHASE GREENE—*Cases of laryngeal and oropharyngeal structure*
 J. S. STONE and associates—*General surgical operations*
 R. W. LOVETT and associates—*Orthopedic clinic*
 Compartment dislocations of hip, results of operation
 Treatment Leg Calve disease pathology and treatment
 Relief of contracture of the hip

Friday, October 27

- J. S. STONE and associates—*General surgical operations*
 R. W. LOVETT and associates—*Orthopedic clinic*
 Infantile paralysis, results in treatment clinic muscle and tendon transplantation, the result of treatment, transplantation of the tensor fasciae latae for paralysis of the abductors.
 R. W. LOVETT and associates—*Orthopedic operations*
 Surgical Staff Clinic—
 W. E. LADD—*Intestine-ureter*
 C. G. MITCHELL—*Intestinal obstruction*
 G. D. COTTER—*Intestinal obstruction by Meckel's diverticulum*
 J. S. STONE and O. M. SCHLOSS—*Atypical cases of appendicitis hidden differential diagnosis*

MASSACHUSETTS HOMOEPATHIC HOSPITAL

Tuesday, October 24

- J. EDWARD BARNES and W. S. K. THOMAS—*Surgery of the stomach, operations*
 D. W. WELLS and associates—*Operations on the eye*
 A. G. HOWARD—*Orthopedics*
 CORBEN SMITH—*Nose and throat clinic*
 D. W. WELLS—*Eye clinic*
 S. W. KILLWORTH—*Lenses of the gastro-intestinal tract*
 C. T. HOWARD and W. S. K. THOMAS—*General surgical operations*
 A. W. ROWE and W. L. MANDERHALL—*Vital function tests in relation to surgery*

Wednesday, October 25

- T. E. CHANDLER and H. J. LEE—*Gynecological operations*
 LORENZO SMITH, E. R. JOHNSON and C. W. BIRD—*Nose and throat operations*
 A. G. HOWARD—*Demonstration back cases*
 T. E. CHANDLER and H. J. LEE—*Gynecological operations*
 A. S. BIRD and F. H. PRATT—*Anatomical and physiological demonstrations*

H. P. MORGAN, D. C. GREEN and D. C. SMITH—
Foreign bodies in the bronchus

Friday October 27

PHILIP HARRISON and assistants—*g*. Ear operations.
H. P. MORGAN and assistants—*g*. Throat operations.
F. H. VANDERBILT and W. B. LANCASTER—*g*. Eye oper-

FORSYTH DENTAL INFIRMARY

Tuesday October 24

PERRY R. HOWE—*g*. Short talks on recent dental research.
EDGAR W. BARRETT and HERMAN ROSENBERG—*g*. Pediatrics
applied to dentistry

Wednesday October 25

WILLIAM E. CHENEY, J. E. TILTON, W. G. FURVEL,
—*g*

bones

NEW ENGLAND DEACONESS HOSPITAL

Tuesday October 24

D. F. JONES—*g*. General surgical operations.
D. F. JONES—*g*. Carcinoma of the rectum.
L. S. MCKITTERICK—*g*. Radiation treatment of carcinoma
of the rectum

Wednesday October 25

F. H. LANE—*g*. Thyroid and general surgical operations.
F. H. LANE—*g*. Treatment of diabetes and its
surgical complications

Thursday October 26

F. H. LANE—*g*. Thyroid and general surgical operations.

Friday, October 27

F. H. LANE—*g*. Thyroid and general surgical operations.

of any old disease

L. P. SALK—*g*. Anesthesia in thyroid disease.
SAMUEL M. JORDAN—*g*. Basal metabolism

NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

Tuesday October 24

ISRAEL D. KERR and MARGARET L. NOTES—*g*. Nose and

suppurations

Wednesday October 25

ELIZABETH T. GRAY and FLORENCE DICKERING—*g*.

Thursday October 26

LADITA D. ADAMS—*g*. General surgical operations.
ISRAEL D. KERR—*g*. Nose and throat operations.
S. A. J. —*g*. Obstetrical, prenatal and post natal cases

BETH ISRAEL HOSPITAL

Wednesday October 25

ALBERT EISENBERG and CARL BEAR—*g*. General
surgical operations.
ALBERT EISENBERG—*g*. Hereditary deforming rheo-
dysplasia and certain allied growth distortions
(with lantern slides).
S. A. ROSEN—*g*. A consideration of the diagnostic points
in the interpretation of abdominal X rays

Thursday October 26

F. O. CRAWFORD—*g*. Genito-urinary operations

Friday October 27

WYMAN WHITTENBORN and MAURICE BARRETT—*g*. General
surgical operations

CAMBRIDGE HOSPITAL

Tuesday October 24

J. W. SEVER—*g*. Orthopedic operations.
A. H. CRAWFORD—*g*. Genito-urinary operations

Wednesday October 25

ALBERT AUGUST, E. A. DARLING, A. W. DUDLEY, H. P.
STEVENS, and associates—*g*. General surgical oper-
ations.
A. S. BACON and E. J. BUTLER—*g*. Demonstration of
nose and throat cases

Thursday October 26

A. S. BACON and E. J. BUTLER—*g*. Nose and throat
operations.
J. L. HEDDINGTON—*g*. Prenatal clinic.
J. B. M. CARY—*g*. Neurological clinic

Friday October 27

ALBERT A. DODD, E. A. DARLING, A. W. DUDLEY, H. P.
STEVENS, and associates—*g*. General surgical op-
erations

BOSTON DISPENSARY

Tuesday October 21

JOSEPH D. ANASTAS and associates—Orthopedic operations: Hibbs operation, tuberculosis of spine, etc. foot right flat foot

Staff Clinic in Out-Patient Department—9

Wednesday October 22

H. F. DAY and associates—Surgical operations

Staff Clinic in Out-Patient Department—9

Staff Clinic and Short Talks—

B. W. TAYLOR—Some points in the anatomy of

J. J. LYNCH JR.—Cervical adenoma

JOSEPH J. McDERMOTT—Abdominal diagnosis in the out-patient department

H. F. DAY—Peritonitis following bacillary infection

Thursday October 23

W. E. CHERRY and H. J. INGLIS—Nose and throat operations

H. J. INGLIS—X-ray diagnosis of diseases of nasal sinuses

Staff Clinic in Out-Patient Department—9

Clinic by Staff—1

W. J. FREEMAN—Insulin therapy in care of patients

HENRY OGDON—X-ray treatment

A. K. PAXTON—Treatment of gonorrhea in women

L. H. SEABORN—Health clinic

MARY AN LADD and HENRY I. DAY—Pyelocystitis in infants: medical and surgical aspects

Friday October 27

Staff Clinic in Out-Patient Department—9

LONG ISLAND HOSPITAL

Wednesday October 25

JOSEPH H. CANNON and associates—9:30. Gastro-intestinal operations.

JOSEPH H. CANNON and associates—2. Demonstration of gastro-intestinal cases

Friday October 27

JOSEPH H. CANNON and associates—9:30. General surgical operations

MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY

Tuesday October 2

C. A. ROCKEFELLER and associates—Ear operations

D. GEORGE GARDNER, H. A. GARDNER, and associates—Nose and throat operations

C. S. DIXON—Eye operations ward and out-patient clinic

F. H. VERHOEFF—Lectures with demonstration of pathological specimens.

Wednesday October 25

D. H. WALKER and assistants—Ear operations

F. E. GARLAND and assistants—Nose and throat operations

W. B. LAMONT, G. H. REYER, and G. S. DIXON—

and pathological sections especially of the internal ear

Staff—2. Demonstration of clinical cases

Thursday October 26

F. E. GARLAND and V. H. KAY JR.—2. End-results in cases of nasal deformity

International Abstract of Surgery

Supplementary to
Surgery, Gynecology and Obstetrics

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JAMES P. FITZGERALD, Surgery of the Eye
FRANK J. NOVAK, Jr., Surgery of the Ear,
Nose and Throat

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| IV. Abstracts of Current Literature | 267-314 |
| V. Bibliography of Current Literature | 315-328 |

COLLIS P. HUNTINGTON MEMORIAL HOSPITAL

Wednesday, October 23

Clinic by Staff—*a.**b.* *c.* *d.* *e.* *f.* *g.* *h.* *i.* *j.* *k.* *l.* *m.* *n.* *o.* *p.* *q.* *r.* *s.* *t.* *u.* *v.* *w.* *x.* *y.* *z.*

and tongue.

D. CROSBY GREENE—Radical in carcinoma of jaw and larynx.

GRUNGE MINTON—Radical in Hodgkin's disease.

O. G. SMITH—Radical in cancer of the bladder.

O. A. LELAND—Radical in carcinoma of cervix.

ERNEST DALAND—Radical in skin lesions, malignant and benign.

LELAND S. McKEITHEN—Radical in cancer of rectum.

Friday, October 25

Clinic by Staff—*a.**b.* *c.* *d.* *e.* *f.* *g.* *h.* *i.* *j.* *k.* *l.* *m.* *n.* *o.* *p.* *q.* *r.* *s.* *t.* *u.* *v.* *w.* *x.* *y.* *z.*

and tongue.

D. CROSBY GREENE—Radical in carcinoma of jaw and larynx.

a. *b.* *c.* *d.* *e.* *f.* *g.* *h.* *i.* *j.* *k.* *l.* *m.* *n.* *o.* *p.* *q.* *r.* *s.* *t.* *u.* *v.* *w.* *x.* *y.* *z.*

benign.

LELAND S. McKEITHEN—Radical in cancer of rectum.

EVANGELINE BOOTH HOSPITAL

Tuesday, October 22

A. K. PAINE—*a.* Prostatal clinic.

Thursday, October 24

A. K. PAINE and STEPHEN ROBINSON—*a.* Gynecological operations.

Friday, October 25

A. K. PAINE and STEPHEN ROBINSON—*a.* Gynecological operations.

UNITED STATES NAVAL HOSPITAL

Tuesday, October 24

LIEUT. J. W. WHITE—*a.* Orthopedic operations. Kallier operation for hairy vulva, arthroscopy of knee for bilateral derangement, osteotomy for malunited humerus, repair of finger tendon.

Wednesday, October 25

CORRECTOR J. S. WOODWARD—*a.* General surgical operations.

Thursday, October 26

a. *b.* *c.* *d.* *e.* *f.* *g.* *h.* *i.* *j.* *k.* *l.* *m.* *n.* *o.* *p.* *q.* *r.* *s.* *t.* *u.* *v.* *w.* *x.* *y.* *z.*LIEUT. J. W. WHITE—*a.* *b.* *c.* *d.* *e.* *f.* *g.* *h.* *i.* *j.* *k.* *l.* *m.* *n.* *o.* *p.* *q.* *r.* *s.* *t.* *u.* *v.* *w.* *x.* *y.* *z.*

1

one a prominent spastic hemiplegia, the other a complete recovery after Brown-Sequard syndrome at the level of the sixth dorsal vertebra.

HARVARD MEDICAL SCHOOL

Tuesday, October 24

H. P. MONROE and C. B. FALVEY, JR.—*a.* Anatomical dissections (Ear, Nose, and Throat Department).

Friday, October 27

a. *b.* *c.* *d.* *e.* *f.* *g.* *h.* *i.* *j.* *k.* *l.* *m.* *n.* *o.* *p.* *q.* *r.* *s.* *t.* *u.* *v.* *w.* *x.* *y.* *z.*

Dates to be arranged

E. A. COOK—*a.* Registry of cases of bone sarcoma.

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INTERNATIONAL ABSTRACT OF SURGERY

OCTOBER, 1922

COLLECTIVE REVIEW

RECENT ADVANCES IN PLEURO-PULMONARY SURGERY

By RALPH BOERNE BETTMAN AND FACS CHICAGO

FOR years the progress of thoracic surgery was blocked by the fear of pneumothorax and lack of faith in the power of the pleura to resist infection. It has been comparatively recently that means have been found whereby

readjustments which are necessary when pneumothorax has been established can usually be made readily by the body. It has been discovered also that by various means such as the use of differential pressure the stabilizing of the mediastinum

with the growth of our knowledge and the expansion of the scope of thoracic surgery new problems present themselves. A large number will undoubtedly be solved by painstaking research, clinical observation and a careful sifting and weighing of opinions. It is no idle boast that within a comparatively few years chest surgery will be on the same firm footing as abdominal surgery today.

DIFFERENTIAL PRESSURE

The work of Graham and Bell seemed to establish firmly the necessity for some sort of a

In a normal chest the mediastinum is a membrane which offers little resistance to pressure changes. The old idea that it is a firm partition between the two pleural cavities is erroneous. The pressure change in one cavity is almost equalized in the other. From the standpoint of pressure relation, the thorax may be considered as one cavity instead of two. Any change in

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By

normal mediastinum and absence of pleural lesions. To Graham (24) the degree of asphyxias which will follow the creation of an open pneumothorax in a normal chest will therefore depend to a considerable extent on the ratio of the amount of air which enters the thoracic cavity to the amount in which important factor

$$\lambda = \frac{V - \frac{R_1}{R_2} T}{\frac{R_1}{R_2} T} C$$

V vital capacity

R_2 rate of respiration before the opening is made

chest of the British). In the second group were (1) the perforating bullet and small shell wound with small clean wounds of entrance and exit (2) the penetrating bullet and small shell wounds with a clean wound of entrance and without extensive rib fractures.

The question as to whether the anesthesia should be local or general and induced with or without differential pressure is still undecided. Heuer used local anesthesia for the local excision and closure of thoracic wounds but general anesthesia without differential pressure when extensive manipulation of the lung was necessary. The wound of the thoracic wall was usually excised. The lung was sutured either directly or after excision of the injured tissue along the tract of the missile or a triangular area was resected and the

closure of the chest gave the best results.

Hutchinson (33) treated simple uninfected

Berger (61) favors a large wide thoracotomy. He first drains and irrigates the cavity for several days and then at a second operation fixes the lung to the thoracic wall and drains the wound again.

The Petit de la Villeon (58) method of extracting foreign bodies through a buttonhole incision, a heavy forceps being guided to the bullet under fluoroscopic control, is worthy of note as de la Villeon reports hundreds of cases in which foreign bodies were successfully removed in this manner. The method is claimed to be extremely simple and renders extensive thoracic operations unnecessary.

pleural cavity hermetic closure of the chest and aspiration of the residual air.

Moylman (57) agrees with Duval that early and radical operation is indicated.

THE RESISTANCE OF THE PLEURA TO INFECTION

With regard to the resistance of the pleura to infection previous opinion has been reversed. Most authors now claim that the resistance of the normal pleura to infection is high but is greatly reduced by pneumothorax.

According to Lockwood (46), the pleura is undoubtedly more resistant to infection than the peritoneum. However empyema following a simple thoracic operation is a grave condition.

Amreich and Sparmann (3) state that the pleura has a great power of absorption. The motion between the pleural walls spreads infecting material in a thin easily absorbable film. That the pleura has particular bactericidal powers seems evident from the fact that spontaneous cure sometimes occurs in cases of severe pleural infection. In experiments on animals Mactel (55) found that quantities of staphylococci which produced abscesses and severe sepsis when injected subcutaneously or intravenously were easily borne by the pleura and after two days the pleural cavity was again sterile.

An infected pleurisy in a case of open pneumothorax is a different matter. The probability that a persistent pneumothorax will remain sterile is extremely slight. Therefore an open pneumo-

LUNG ABSCESS

Lung abscesses are becoming better recognized but we are still far from definite conclusions as to their etiology or treatment.

In our opinion, however the most potent cause of this complication is the introduction, through either the lymph or the vascular circulation, of infected emboli which find lodgment in the lung structures. From the discussion of this paper it would appear that

"If in substituting numerical values in the equation we insert 4,800 for V (the normal vital capacity of men with a height of from 5 ft., 8 1/2 in to 6 ft. according to Peabody and Wentworth) 15 for R_1 (an average rate of respiration during complete rest) and 60 for R_2 (an estimated maximum rate for the greatest possible depth of respiration) then $V = \frac{4,800 - 125}{125} \Delta C = 37.4 \times 1.8$ or $V = 67.32$ sq. cm. or 10.4 sq. in."

Observations made on the battle fields, in the first-aid stations, and in the base hospitals in France appeared at variance with this work of Graham. It was not uncommon to see men with wide-open chest wounds, much larger than the maximum opening permitted by Graham's formula, who continued to breathe with surprisingly little discomfort. Affected of this fact surgeons became bolder in their operative procedures and many came to the conclusion that an open pneumothorax is of much less importance than was

one of differential pressure to prevent acute pneumothorax during operation. In one article (51) he refers to differential pressure as the very foundation of modern chest surgery.

Libenthal (44) relies upon intrapleural

from. Results in the laboratory and the clinic indicate that the complications are fewer when differential pressure is not used.

Yates (73) states, "The positive-pressure gas-oxygen analgesia devised by Gwinther and primary air-tight one way drainage are going to make thoracotomy a feasible safe operation because they give the greatest protection against purulent pleurisy."

Matus (40) claims that one of the most dramatic of the surgical experiences of the war was the "seeming freedom and impunity with which military surgeons invaded the chest and transplanted the thoracic organs. But he adds, 'I would regard it as a veritable calamity that would befall the progress of thoracic surgery if

one of them were to breed a com-

mon sense and
the

lung collapse.

Lockwood (46) also writing of his war experiences claims that differential pressure is unnecessary. He takes, The deductions of Gra-

of the lung is extremely rare. (41) 481 is with Lockwood.

Richter (59) also is of the opinion that the mechanical arguments on does are not

INJURIES TO THE CHEST WALL

The literature on injuries to the chest wall is so extensive that it is not possible to review it in detail.

experi-
mented in

immediate surgical treatment at forward hospitals and those which could be safely treated expectantly. The former group eventually came to include (1) those with primary hemorrhage threatening life (2) those with open sucking pneumothorax (3) those with large retained foreign bodies (over 1 cm. in diameter) and (4) those with extensive rib fractures (the move-

Blewer (34) claims that one of the principles underlying safe thoracic surgery is the

chest of the British) In the second group were (1) the perforating bullet and small shell wounds with small clean wounds of entrance and exit, (2) the penetrating bullet and small shell wound with a clean wound of entrance and without extensive rib fractures

The question as to whether the anaesthesia should be local or general and induced with or without differential pressure is still undecided. Heuer used local anaesthesia for the local excision and closure of thoracic wounds but general anaesthesia without differential pressure when extensive manipulation of the lung was necessary. The wound of the thoracic wall was usually excised. The lung was sutured either directly or after excision of the injured tissue along the tract of the missile, or a triangular area was resected and the

pleural cavity hermetic closure of the chest, and aspiration of the residual air

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LUNG ABSCESS

Lung abscesses are becoming better recognized but we are still far from definite conclusions as to their etiology or treatment.

Lynch (47) believes that most if not all, lung abscesses are due to aspiration. Fisher and Cohen (20) state: "It is undoubtedly feasible for a lung abscess to result from aspiration of infective material."

In our opinion, however, the most potent cause of this complication is the introduction, through either the lymph or the vascular circulation, of infected emboli which find lodgment in the lung structures. From the discussion of this paper it would appear that

treatment of infection

While the lung is infected

we will

the majority of the laryngologists, rhinologists, and surgeons were in favor of the first view

Lynch (47) states that relief and possibly cure may be brought about by means of bronchial

ers called attention to the great number of pulmonary complications following surgical interventions and concluded that they were due to

were injected into the bronchial tree to map out the abscess cavities. Lynch and Stewart claim that this can be done without endangering life and that the method has many possibilities. The X-ray picture must be taken very soon after the lithium is injected or the patient will cough up a great part of it.

The treatment of lung abscess has improved but the results are still far from satisfactory.

Lockwood (46) states that a much smaller

cure. He advises first trying rest in bed, postural drainage, open air treatment and forced feeding.

Lemon (41) also recommends first giving medical treatment a trial. Of eighty-one cases observed by him fifty were due to a lung infection such as pneumonia, grippé etc. and seventeen followed throat operations. Lemon is another of those who emphasize the possibility that abscess of the lung may be caused by septic emboli.

In this connection mention should be made of the work of Rupp (62) who, after a study of 650

they originate from the veins of the upper or the lower part of the body.

Laignel-Lavastine and Coulaud (40) cured a case of pneumococcus lung abscess with autoserum. Whittemore (69) favors early operation

ray action.

Tenckhury (67) in 1917 reported two cases of acute non-tuberculous pulmonary abscess treated by means of artificial pneumothorax. In 1918 he reported ten cases, six of which were cured, two were temporarily improved and two resulted fatally.

Green (27) believes that, on account of adhesions, artificial pneumothorax cannot be of aid.

In operating in cases of abscesses due to retained foreign bodies in which the presence of

or cautery remove the foreign body and drain.

Brenning (9) is opposed to treating lung abscess by pneumothorax.

in the very spot where one desires the lung to be collapsed adhesions keep it outfastened to the parietal pleura."

gradually diminished in size.

Regarding the prognosis in children Westler and Schwartz (68) claim that it is poor in cases of abscess following pneumonia but better in cases of abscess resulting from the aspiration of foreign bodies or septic material during operation.

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adherent pleura after the pleural cavity had been walled off by suture of the lung to the parietal pleura. He believes that a two-stage operation is a safeguard against empyema.

bronchoscope.

BRONCHIECTASIS

The subject of bronchiectasis is closely allied

Meyer (52) writes: "A patient who shows all the symptoms of bronchiectasis and tuberculosis"

in over 90 per cent of the cases a bronchiectatic."

Sauerbruch (63) also emphasizes the similarity of the symptoms of bronchiectasis and tuberculosis.

In the diagnosis and localization of the source of the suppurative process bronchoscopy is of importance.

Many methods of treatment have been suggested. Meyer (52) states that in advanced cases the only method that can cure is lobectomy but that in others extrapleural thoracotomy and pleurectomy are indicated.

Heuer (70) states that bronchiectasis involving one lower lobe lends itself to surgery. He claims that collapse therapy based upon rib resection methods such as those of Estlander, Quincke, Friedrich, Sauerbruch, Tuffier and Wilson is inadequate and rarely results in more than temporary improvement. He doubts also the value of artificial pneumothorax. When it is possible, he regards lobectomy as the operation of choice.

Sauerbruch claims that ligation of the pulmonary artery can help in the treatment of

thorax. The condition offering the chief obstacle to artificial pneumothorax is the formation of adhesions. Of late, this difficulty has been met in two entirely different ways: (1) by dissolution of the adhesions, and (2) by collapsing the lung. The most original of the recent efforts are those of Jacobaeus (35, 36). Jacobaeus attempts to establish artificial pneumothorax in the usual manner then locates the adhesions by means of thoracoscopy, that is the insertion of an endoscope through a stab wound and then through another puncture wound introduces an electrocautery and burns through the adhesions, being guided by endoscopic vision. The use of the cautery prevents hemorrhage. The most serious complications of this operation are pleuritic exudate and empyema. "The mortality in Jacobaeus' cases was about 6 per cent, although it is not fair to attribute all of the deaths to the operation alone. It is probable that some of the

cases reported by him were due to the clinical results it is more difficult to establish definite figures. Jacobaeus refers to Gravesen's tables of prognosis of pulmonary tuberculosis without adhesions or with apical or lateral or diaphragmatic adhesions. In the seventy-eight cases reported the results following categorization of the adhesions were better than those following the usual method of treatment alone.

The literature is replete with articles bearing on extrapleural thoracotomy for collapse of the lung. In 1916 Robinson (60) condemned this procedure and stated that the only justifiable mechanical method for the collapse of the lung in pulmonary tuberculosis is the introduction of nitrogen or a fluid into the pleural cavity.

Whittemore and Chaffin (70) have reported a series of cases in which

which is affected by compression of the lung a thoracoplastic operation is to be preferred to a transplantation. When feasible, lobectomy is the operation of choice.

TUBERCULOSIS

It was only to be expected that as soon as the development of technique had reduced the danger of thoracic surgery action should be directed against combating tuberculosis.

Since the work of Murphy and Forstmann the trend of surgical practice in the treatment of tu-

berculosis of the lung. If pneumothorax has been found of no avail. Contra-indications are tuberculous foci in other parts of the body. Of eleven patients treated in this manner three died postoperatively. In another series of twenty-six cases death followed the operation immediately in one case and a cure was obtained in 40 per cent. Bull advises resecting 12 cm. of the tenth and

then begins the resection in the back, in a line

parallel with the spine and equidistant from the

adhesions and thus prevent complete collapse of the lung when the empyema is opened." These

thorax. Intrathoracic fillings should be used in cases of tuberculous only when the lesions have healed.

Lubenthal (45) follows Sauerbruch technique of posterior incision and resection.

Maurin (50) recommends Capparoni's method of injecting iodofornized glycerine into the pleural cavity for tuberculous serofibrinous pleurisy and empyema. The liberated iodine has a destructive action on the tubercle bacillus and a favorable action on the lung as it sets up an autotuberculous therapy. Moreover the chance of secondary infection and permanent fistula after operation is avoided.

EMPHYSEMA

MAURIN (50)

solution in the sterilization of the cavity.

Before the war many surgeons had already forsaken the time-honored rib resection and open drainage for some form of closed drainage. Many new devices for the establishment of air-tight drainage were brought forth. The method of trocar thoracotomy became popular. Diederich (13) at the base hospital at Camp Pike devised an ingenious trocar for the insertion of the tube in air-tight treatment. Numerous other methods of air-tight drainage were used. Brewer tubes were frequently used, and drainage was effected also by means of continuous siphonage as approved by

Antiseptics, especially Dakin's solution, were often used to irrigate the empyema cavity. The Rockefeller Institute in New York was one of the first to develop a well-planned technique for the sterilization of the empyema cavity by means of Dakin solution.

Numerous devices for expanding the collapsed lung were introduced. Many were modifications of the Wolfe blow bottles. Others attempted expansion of the lung by means of suction through the drainage tubes. The value of exercise to bring about expansion was especially recognized.

The literature on chronic empyema is as voluminous as that on acute empyema. It will therefore be impossible to dwell at length upon it.

Because of the beneficial results obtained with

ological factors are so entirely different.

Much new light was thrown upon empyema by the work of the medical department of the United States forces. Gradually the various opinions first presented shaped themselves along a few definite lines. To quote Ashhurst (4): "The conclusion of the Empyema Commission and consensus of clinical experience as far as treatment is concerned may be summed up as follows: (1) cases of pleural effusion suspected to be purulent should be aspirated and if the

chronic empyema will heal under proper treat-

may be postponed until frank pus has formed as this delay will permit the formation of firmer

the empyema cavity. After the lung has been freed as much as possible by Ransohoff's dissection method, when this is advisable, he closes the chest wall tightly around a tube placed in

apex. In such cases he attacks the apex cavity from the front, makes a trap-door by resecting a portion of two or three ribs, splits the pectoralis major muscle and lays the cut ends of the latter in the cavity which is thus plugged somewhat in the manner of Tuffier a fat implantation but with live muscle tissue. Kirschner temporarily interrupts the action of the phrenic nerve on the same side exposing the nerve in the neck.

Manipulation of the empyema cavity has been advocated by Beck (6). The operation is taken up in this review in the discussion of lung abscess.

Chevrier (11) believes that drainage in the axillary or scapular line is not efficient. In order to drain at the most dependent point, he establishes his drainage thoracotomy by making a posterior incision near the vertebral column, introduces a finger through the wound and explores the lowest portion of the latero-vertebral depression.

Ewing (18) gives it as about 0.1 per cent. The statistics of Adler (2), Briese, Kaufmann and Ewing all give the proportion of males to females affected as three to one.

Regarding the cause of the condition Barron writes, "Perhaps the chief etiologic factors are inflammatory conditions, and of these, tuberculosis is the most common." He cites Kaufmann and Aschoff as holding the same view. The suggestion is made that the influenza epidemic with its subsequent pulmonary inflammatory processes may be responsible for a number of pulmonary carcinomata encountered during the past few years.

Grossly the tumors are of three types (1) nodular (2) diffuse or lobar (3) infiltrating. The third is the most common. The right lung seems to be more often involved than the left and the upper lobe more frequently than the lower. Histologically the cylindrical-celled growths are the most common and of these the adenocarcinoma is the most frequent type.

Barron is of the opinion that most pulmonary carcinomata develop from the bronchial epithelium. Some originate from the bronchial mucous glands and only a few from the alveolar cells. Epithelial metaplasia is relatively common in this region. This may explain the fact that this region is especially apt to

develop

Barron quotes Fishburg and Steinbach (19) who in a series of thirty three cases, found that the condition was erroneously diagnosed most

Yankauer (71) reports a case of fibroma extending into the lumen of the left main bronchus which he was able to remove through the bronchoscope. He also reports a case of malignancy diagnosed with the bronchoscope and treated with at least great temporary improvement, by means of the X-ray and the application of radium through the bronchoscope.

EXPERIMENTAL

The experimental work of Heuer and Dunn (31) on lobectomy is very interesting. These workers performed total pneumectomy on the left side on twenty three dogs. Thirteen of the animals

was at all into it by means of which liquid can be forced in and aspirated out by pressure.

Numerous operations of the types just mentioned have been advocated for the cure of chronic empyema. The underlying ideas are of course not new. It is proper in this review however to make note of the return to the principle of sterilizing the cavity by means of an antiseptic solution and to call attention to the fact that a large number of writers are advising extrapleural collapse of the chest wall.

CANCER OF THE LUNG

The literature on cancer of the lung has been very carefully reviewed by Barron (5). Barron claims that such a review demonstrates the increasing importance of the disease. He quotes Briese (8) who found sixty primary tumors of the lung in 12,971 autopsies (0.46 per cent). Kaufmann (38) he states, gives the incidence of pulmonary tumors at about 0.2 per cent, while

recovered. Six died of distemper and four died as the result of the experiment. These results are very different from those previously reported by other workers who claimed that the great majority of animals died from leakage of the stump or infection. Heuer and Dunn performed their operation through an intercostal incision and used intratracheal insufflation anesthetics with positive pressure. The results obtained

changes in the alveolar CO_2 , alveolar O and the blood CO_2 content and capacity and the per

complete anatomical changes in the remaining lung have taken place."

following methods: (1) simple mass ligature in

to infection than was formerly supposed. Incidentally they found that cultures made from the walls of the bronchus at the level of the bifurcation of the trachea were always sterile.

Usually after four to six weeks the pleural cavity from which the lung was taken was almost completely obliterated. The process of obliteration began after the first few days and was nearly completed in two to three weeks. The remaining lung increased in size.

Similar to the results obtained by most experimenters are those reported by Georg, Jr. (22) who records only four recoveries after left lung operations. He points out that intratracheal insufflation was not without harmful effect upon the lungs even in the dogs which recovered. Microscopic sections showed occasional interstitial emphysema and even destruction of walls of the alveoli. In every section an intense congestion and atelectasis were found which Georg attributes to the harmful effect of insufflation upon the circulation of the lung.

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chaperonoma and the lungs of dogs in a bell jar connected the trachea with the outer air through a glass tube and then aspirated the air in the jar through a stopcock to inflate the lungs. The amount of negative pressure induced in the pleural cavity (bell jar) was determined by means of a water manometer. An exudate was readily

state of expiration than when they were in the state of respiration. The exudate therefore which under the conditions of the experiment flowed out copiously during expiration, represents fluid that has been squeezed out of the edematous pleura as a result of the sudden diminution in surface necessitated by the act of expiration. In discussing his findings Graham states that he is aware that the experimental conditions were not identical with those present in life.

Drinker, Peabody, and Blumgart (24) also investigating the physiology of respiration performed a series of experiments in which they compressed the pulmonary vessels by means of a small clamp applied through a thoracotomy opening into the pericardium but not into the pleural spaces. The tidal air was then measured by a

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percentage of oxygen unsaturation. Consequently there is a marked rise in the hemoglobin content of the blood and therefore in the oxygen carrying capacity which may be interpreted as a compensatory method. As has been noted, the

vessels into the trachea and the lungs.

manent interference with the entrance of air into the lungs resulted. They showed that intra-vascular blood can encroach remarkably upon the pulmonary air space.

The experimental work of Graham and Bell (26) which in its influence on our conception of chest physiology is the most important of recent years, has been described elsewhere.

With regard to the spread of emphysema Achard (1) showed that when he insufflated air directly into the mediastinum of an anesthetized dog the gas bubbles spread upward into the cervical region and downward into the retroperitoneal tissue. He also emphasized by experiments on cadavers the continuity between the retroperitoneal, mediastinal and cervical tissues.

A second plan of treatment is

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is indicated

The only way to avoid hemorrhage from the vessels firmly buried in adhesions is to resort to the mass ligation principle, according to which, after the pedicle is cut, a chain of heavy chromic catgut or silk is used to transfix every part, the bronchus and blood vessels alike. A temporary fistula usually results. In four of six cases a fistula developed, drained, and healed and finally after one or more attempts, remained closed. In one case in which the entire right lung was resected the fistula did not heal spontaneously. The further the fistula was situated from the

(4) Kenyon described in Johnson's Operative Therapeutics

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ABSTRACTS OF CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE

Blake, J. A.: Drainage. *Ann. S. & G.* 1914, 385

During the war the importance of dependent drainage was emphasized by experience with gunshot injuries, but it was found also that drainage was not necessary when there was no dead or necrotic tissue in the wound and that this held true also in infections of the cavities of the body and the viscera.

peritonitis was markedly lower than that of drained cases. Subsequent experience has demonstrated that the drains themselves by pressure and foreign-body irritation, cause the persistence of peritonitis which otherwise would subside. In an ordinary diffuse peritonitis, however severe, drainage is unnecessary but in local peritonitis, such for example as that due to an abscess, drains should be used.

Drains traversing the joints are fatal to the joints. The author found that his results were greatly improved by using short drains which only entered the joint. Mention is made of the remarkable results obtained by Wilms, who did not use drains at all but after making an incision relied on active motion to prevent accumulation.

In the treatment of empyema the author en-

forces his opinion that drainage of the viscus is not practiced frequently enough in cases of advanced peritonitis with paralytic ileus. A secondary ileostomy has saved life in many such cases and should more often be a primary operation. All that is necessary is the suturing of a soft catheter with catgut to the margins of a small opening in the lower part of the ileum and inversion of the wall with a couple of pursestring sutures so the stoma will close when the catheter is withdrawn after two or more days when the catgut becomes loosened.

In cholecystectomy and resections of the colon, a slip of rubber dam is sufficient to form a lead for the escape of discharges. Drainage must be employed if retroperitoneal spaces are opened, particularly in retroperitoneal ureterotomy.

grow

The indications for its use are first, as a pressure hemostat, and second, to prevent the falling of the soft parts into cavities during the early stages of repair. Except when employed as a hemostat it should be separated from the wound surfaces by rubber or some other non-adhering material. The true indication for rubber tubing is the presence of a large quantity of material, particularly solid material, to be evacuated as in the urinary bladder, the gall-bladder or ducts, the intestines, and wounds containing solid necrotic material.

extensive. Shonous exudate, immediate resolution was obtained by cleaning the cavity out by hand through a large incision, drains being dispensed with. It is safe to dispense with tubes if after evacuation no visible foreign material, such as adherent fibrin, remains.

Other cases raising the question as to whether the usual method of drainage by tube is detrimental are cases of cholangitis. In those which have been drained only to the opening in the common bile duct the discharge has cleared more quickly with less suppuration than in those in which the drain was introduced into the duct ceasing in a few days instead of after as many weeks.

drains may be inserted if necessary.

CORREX C. VANCEY, M.D.

Parca, A. D.: An Improved Method of Skin Graft. *Engl. & Surg.* 9, Jan. 1914.

The Esser epithelial inlay method was used. This necessitates complete coaptation of the graft throughout the area to be epithelialized and firm pressure and tension over this area. These three factors prevent the accumulation of secretion under the graft and also to a large degree prevent the condition of passive congestion or exsiccans stasis which

to those portions of the graft in apposition to them a step which serves the double purpose of holding

obtained

CARL R. STEINER, M.D.

ANÆSTHESIA

Ryan, C. Combined Anæsthesia. *J. Iowa State M. Soc.* 1924, 21, 8

The term combined anæsthesia is applied to the use of two or more compatible drugs for the induction of anæsthesia or analgesia. The use of morphine or pentobarbital with atropine or scopolamine as a hypodermic preliminary to either general or local anæsthesia constitutes combined anæsthesia. These narcotics reduce the amount of the anæsthetic required, inhibit salivary secretion, minimize the

The technique is the same as when a local anæsthetic is employed alone.

For the successful use of combined anæsthesia the operator must have mastered local anæsthesia. Consciousness after-care of the patient until recovery is complete is, of course, essential.

REYNOLD M. D.

Calceagno B. N. Arterial Anæsthesia (Anæsthesia arterial). *Scienze med.* 1922, XVII, 66

The name of Goyanes is associated particularly with the history of arterial anæsthesia. Goyanes first experimental work on dogs the injection of cocaine into the femoral artery was reported in 1909. Oppel of Petrograd also did much along this line. Goyanes stated that this form of anæsthesia gives excellent results and that when the dosage and solutions recommended are employed it is safe. It is adapted particularly to the surgery of the limbs. An Esmarch constriction is used to interrupt the circulation. About 10 c cm. of a 50 per cent solution of novocaine diluted to about half in a 1:1,000 physiological solution are injected into the selected artery. Any artery of the limb may be chosen. The anæsthesia obtained is absolute and spreads to the extremity of the limb. The fibrous

pressure has been

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as employed storaine but as a series of experiments on animals demonstrated that storaine has a harmful action he discontinued its use.

Experimental studies of the effects of novocaine on the blood showed that it fully meets all the requirements of arterial anæsthesia and has only a slight effect on the red corpuscles and the vascular walls.

To illustrate his technique Calceagno reports a case of comminuted fracture of the tibia and fibula of the right leg causing traumatic shock. Five hundred cubic centimeters of physiological salt solution were first administered and the usual shock treatment was given. Arterial anæsthesia was obtained by injecting 20 c cm. of 1 per cent

importance is an infectious or suspicious lesion where the arterial puncture would be made.

W. A. BARNES.

one

The psychology of anæsthesia and surgery has

between the author obtained a reduction of 50 per cent in the mortality and morbidity in approximately 1000 operations.

The essential points to be observed are summarized as follows:

Conscious and careful consideration should be given to the patient from the moment he enters the hospital. Dra. tic purgatives should be withheld. If

twenty-four hours after the operation. A hypodermic should be given the night before the operation to

done with as little handling as possible.

If local anæsthesia is not to be used, a light general anæsthesia is advisable induced preferably with nitrous-oxide-oxygen followed, if necessary, by

SURGERY OF THE HEAD AND NECK

HEAD

Shepherd, J. M.: Cholesteatoma of the Temporal Bone, with the Report of an Unusual Case. *British M. & S. J.* 9: 2 (xxvi), 877

Accumulated evidence tends to prove that

the temporal bone penetrates the tympanic cavity during growth or originate in the middle ear and wear the bone away by pressure

Cases of primary cholesteatoma of the mucous membrane of the tympanic cavity have been reported in which symptoms of inflammation and perforation of the membrane were absent. A

the ear ceased

The striking feature in this case was the extensive

ear changes present.

Permanent cures are rare after either spontaneous expulsion or conservative treatment. In many cases a cure is obtained only after the middle ear spaces have been explored through the mastoid or mastoid process. J. J. HANNAH, M.D.

Arquellada, A. M.: A New Case of Occipital Encephalocoele Which Was Cured (L. caso nuevo de encefalocoele occipital). *Primeria esp.* 19: 21, 20

ectopic tumor

In Arquellada's opinion this case verifies the theory of Velasco Pajares that encephalocoele is congenital and due to the presence of ectopic tissue which hinders the normal development of the bone.

V. A. BARGAN

Abendster II: The Diagnosis of Silent Intracranial Abscess During the Ambulatory Period (Le diagnostic des abs intracrâniens silencieux à la période ambulatoire). *Presse méd. Par.* 9: 2, 474

Intracranial abscesses of non-traumatic origin may arise from suppurations of the perimastoid.

under all the ... have the ... and over ... Where ... point it

the antero-external part of the brain, zones almost silent. Even if very large and destructive they do not cause marked symptoms and frequently are

via, cephalalgia and clouding of the intellect.

patient with a nasal or otitic suppuration should excite alarm. These signs appear very early, while the patient is still active and usually are considered as due only to meningitis or neurasthenia. The presence of tumor or other signs of an intracranial process cannot be depended upon.

The author gives the history of ten illustrative cases of extradural, cerebral, and cerebellar abscesses of slow evolution.

In three cases of extradural abscess and four cases of brain abscess choked disk, localized paresis, and motor and sensory signs were absent. The pulse was generally slow and the temperature was normal, elevated or subnormal. Vomiting was rare. Cephalalgia was probably present in all cases but in some was not mentioned by the patient. Mental depression was marked in every case of brain abscess and in the cases of extradural cerebellar abscess with a grave evolution.

In Absoll's opinion exploration of the dura should always be done when there is suspicion of a meningoccephalic reaction and exploration of the brain and cerebellum should be done only when the exploration of the dura matter is negative. As meningeal abscesses are almost always fatal when far advanced, the importance of early diagnosis is apparent. Exploratory trephinations and punctures should be done under local anesthesia. Chloroform is very dangerous. Absoll believes it was responsible for two deaths in his series of cases.

W. A. BAKER

Walter E. A. Calcium within the Brain. Report of a Case of Intracranial Calcification with Successful Operation and Recovery. *Jour. of Urol.* 92: 222-230.

Up to 1914 only seven cases of intracranial calcification were reported in the literature. Those now on record comprise calcification in gummata, cyst walls, the parietal gland, basal and occipital-parietal tumors, cysticercus, brain abscess, aneurysm of the internal carotid artery, the white substance of the brain, and the sella. Less than twenty cases of true bony tumors (osteoma and osteosarcoma) or tumors which have undergone calcification or calcification has been reported.

The author's case differs from those found in the literature in that the calcium within the brain substance was shown by the roentgen examination and successfully removed at operation. These calcium were solid, grayish white masses composed almost entirely of calcium oxalate with organic material which was probably decomposed blood. They were irregular in shape, having many projecting nodules. One of them measured $\frac{1}{2}$ by $\frac{1}{2}$ by $\frac{1}{2}$ in. and another $\frac{1}{2}$ by $\frac{1}{2}$ by $\frac{1}{2}$ in. The third was about the same size but was crushed in its removal. Intracranial calcification may be classified as follows:

1. That occurring in the walls of cysts or abscess cavities.

Deposits of brain sand, e.g. the deposit of

lime in the pineal body. The deposits in the soft cerebra, the so-called psammomata, are classified by some as true tumors or osteomata.

3. Calcium deposits in the walls of brain vessels.

4. Deposits of calcium in true brain tumors. These include gummata and tuberculomata.

5. The true bony tumors—osteomata and osteosarcomata.

6. A class of calcified bodies which occur in the white substance of the brain upon the site of a peculiar degenerative process described by Bannoe and Hansen.

The author believes that in his case the deposits originated in the tissue spaces after a primary colloidal degeneration following some severe intoxication causing disturbance of metabolism and defective drainage of the tissue fluids.

JOHN D. ELLIS, M.D.

Bartlett F. H., and Wolfstam, M. A. (Clinical and Pathological Study of Brain Tumors in Young Children. *Arch. Pediat.* 1932: 49: 582, 586.

In 4,563 autopsies performed at the Babies Hospital in New York a neoplasm of the brain was found in only nine, an incidence of 0.2 per cent. The occurrence of brain tumors in adults is 1 per cent. Two of the children with such growths were girls and seven were boys. Their ages ranged from 2 weeks to 3 years.

In the detailed study of seven cases it was found that five of the neoplasms were located in the cerebellum, constituting infratentorial tumors, and two were in the cerebrum constituting supratentorial tumors. All of the infratentorial tumors involved the vermis extended into one lobe of the cerebellum, compressed the other lobe and had distorted the medulla. One had extended into the pons and was accompanied by a cyst of the fourth ventricle. Another involved one of the cerebellopontine pedicles. None had formed metastases in other organs. The tumors were all large. They were situated under the pia, which was deep red or reddish blue over the growth and were very vascular. They contained small hemorrhages and areas of necrosis. Hydrocephalus was present in every case. Histologically all five infratentorial tumors were gliomata of the astrocytoma type.

The two supratentorial tumors were desmolar in location and structure. One involved the corpora striata, optic thalami, and corpora quadrigemina. Histologically this growth was a glioma. In the other case the tumor occurred in a child so young (the first symptoms being noted at 2 weeks of age) that its congenital nature could not be doubted. Histologically this tumor was a glioma sarcomatoma or gliosarcoma. One boy with a glioma had a horseshoe kidney.

The symptoms produced by the growths were similar to those in adults, viz., distinctly increased reflexes, and focal paralysis. Vomiting occurred in three of the seven cases as an early symptom, but in none was it unusual in frequency or of the ex-

plastic type. Convulsions occurred in only one instance and then only a few hours before death.

pressure

The spinal fluid was increased only in the early

stage and occurred in the tumor

H. W. F. K. M.D.

Grant, F. C. Alcoholic Injection of the Second and Third Divisions of the Trigeminal Nerve. Clinical Results with a More Exact Technique. *J. Am. Med. Ass.* 1919, 780.

The injection of alcohol into the three divisions

Schlaffer K. Modern Methods of Facial Plasticity. (Über gegenwärtige Methoden der Gesichtsplastik.) *Schweiz. med. Wochenschr.* 1913, 383.

Valley 1914, 144. Luskman. A large number of facial injuries were treated in 700 beds.

In order to obtain healing without a reaction, latent infections must be eliminated as much as possible. Intratracheal narcotics with the Sherris apparatus has been found valuable but local anesthesia is employed for minor operations. Ligation is restricted as much as possible and careful suturing

planted, the subsequent shrinkage must be taken into consideration. In the use of pedicled flaps tension must be avoided. The pedicle is best pro-

and a angle of 90 degrees in the horizontal plane

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5 cm

of in

sections materially reduced in size and fail ure to reach the nerve trunk.

H. A. McKim M.D.

Brown, B. An Enormous Nasopharyngeal Fibroma

Pedicled muscle is preferable to fatty tissue to fill out defects as it does not shrink. For the reconstruction of obliterated sections of the oral or eye cavities the rubber-inlay method of Esmar is of value. Smaller bony defects in the lower jaw are bridged by pedicled flaps of muscle and bone and larger defects by freely transplanted bone. In all plastic operations several attempts give better results than large single operations. Harkiss (1)

Frankenreich O. Recent Results of Plastic Surgery. (Ungewöhnliche Fälle der Gesichtsplastik.) *Schweiz. med. Wochenschr.* 1913, 383.

sutured to the peritoneum of the mastoid region. The results were excellent.

In the third case a deep depression in the posterior part of the horizontal branch of the maxilla, the result of a healed osteomyelitic process, was corrected by excision of the scar, the insertion of a cartilage graft, and suturing of the stretched skin and cellular tissue over the graft.

W. A. BARRY.

NECK

Lahry, F. H.: Multiple Stage Measures in the Surgery of Generalized Hyperthyroidism. *J. Am. Med. Ass.* 922, 1924, 17.

In Lahry's opinion the operative mortality in

in the most serious case seen by Lahry at least a single injection of the gland with boiling water was possible. This procedure has not increased the

difficulty of removing the gland. The next stage is the ligation of a superior thyroid artery after

1

the removal of the other half.

Lahry emphasizes the fact that it is rarely necessary to resort to this long and trying procedure. Almost all patients who are unable to endure a thyroidectomy can easily withstand a double ligation.

The patient's reaction to the measure used is

ported trip to the operating room.

R. M. WATMAN, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Kozmaroff, W. M.: Resection of the Sternum for Tumor (Leber des Sternumresektion wegen Tumors). *Verhandl. d. 21. Chir. Gesellsch. Berl.* 1924, 14.

Tumors of the sternum are not frequently observed. To the eight cases described in the literature the author adds another which was operated on by Oppel. The patient, a woman 35 years of age, stated that the tumor had been present for five years. Following an injury occurring six months previously it had increased in size.

In the time it was found that the growth of

was unimpaired. At the end of six months there were no signs of recurrence and no symptoms.

(Continued 7)

Duval, P.: The Results of Unilateral Intrathoracic Surgery with Non-Adherent Pleura (Les résultats actuels de la chirurgie intra-thoracique unilatérale en pleurésie libre). *Presse méd. Par.* 1924, 499.

In Sauerbruch's opinion a typical pneumothorax is dangerous and therefore in all thoracic operations a pressure chamber should be used. Bury on the other hand believes that the view of Sauerbruch are based on an erroneous conception of thoracic physiology and animal experiment and that the unilateral typical pneumothorax is innocuous compared with traumatic pneumothorax.

Graham using the dog in which the pleurae communicate has shown that complete pneumo-

ostic condition on both sides were firmly adherent to it. The X-ray plate showed that the hemipneumothorax was such that it was taken into the mediastinum.

The

larger the opening the greater the pneumothorax

which has
a findings
pneumo-

which has such conditions are unnecessary and
are a confession of ignorance or timidity on the

movement of air causing very grave reflex symptoms

Duval cites his results in over 100 cases of intra-thoracic surgery in which there were only two deaths. The procedure he used in these cases was the same as that he employed in the animal experi-

nor precancerous conditions

Non-encapsulated tumors of the adenomatous

Benign tumors of cysts are rarely malignant. Possible exceptions to this rule e.g. a carcinoma developing in a breast already the site of a benign tumor were not observed in this series

permeas. There were no postoperative symptoms

In cases of wounds it is great advantage to have the lungs collapsed as they are then much more easily examined and sutured because haemostasis can be obtained more readily. If operation is done in such cases without complete deflation of the lung tissue there is danger of infection of the pleural cavity by the blood which has been in contact with the air and has escaped under pressure. The so-called damse of the lung due to the same cause can be eliminated by compression.

Duval uses ether anesthesia, does not desire the

preserve the contour of the breast and incisions

Pech, Cl. H. and White W. Cl.: Tumors of the Breast. J. Surg. 1922 1923 64

This report is based on a series of 331 cases of tumors of the breast 41 per cent of which were

ovoid lobectomy of Stewart, which has been the incision of choice for the last 10 or seven years, was used in eighty-one cases.

The length of the time the tumor had been observed was found to be of little help in the

oblique ovoid, 2 and transverse ovoid 22.

Benign tumors or cysts of the breast can be

frankly malignant. Both cases were lost to the recall system.

The one patient with sarcoma who was traced as well after nine years.

Postoperative X-ray treatment has been given as a routine procedure for the past three or four years, but the time that has elapsed is still too short to warrant conclusions as to its value. The authors believe that in certain cases it will retard or prevent recurrence. When recurrence was actually present

later. About one year after the operation a small nodule developed at one side of the scar and grew

nodules in nine (mostly advanced cases with secondary nodules) palpable axillary nodes in seventy-seven involvement of axillary nodes at the time of operation in 109 previous lactation in seventy-two previous lactation in sixty-eight previous trauma in fifteen and pain and tenderness in fifteen. Only one of the patients was a male.

The pathologic examination showed adenocarcinoma in seventy-eight cases, scirrhous carcinoma in fifty-three, medullary carcinoma in fifty-eight, Paget's disease in two, and sarcoma in four.

Of the fifty-nine patients traced who died or have a recurrence, forty-eight had involvement of the axillary glands at the time of operation. Of the fifty-three patients now alive and well, seventeen

of the tumor

Eleven cases collected from the literature are reported briefly. CARL R. STEINAK, M.D.

Cheatta, G. L. Cancer of the Breast: Treatment of the Proximal Breast. *Bull. M. J.* 1932, 1, 869

which surgical measures have proved unsatisfactory. This condition is worthy of recognition for two reasons:

which may occasionally enable the surgeon to remove the tumor.

operation

Definite follow-up information regarding sixty-nine patients operated upon more than five years ago was as follows:

Dead or alive with recurrence, 43; with axillary metastases at the time of operation, 33; without axillary metastases at the time of operation, 9.

Alive and well, 7; with axillary metastases at the time of operation, without axillary metastases at the time of operation, 7.

CARL R. STEINAK, M.D.

David, V. C. Papillary Cystadenomas of the Male Breast. *J. Surg.* 9, 1, 1915, 65.

The most characteristic symptom of a papillary cystadenoma, in addition to the slowly growing tumor under the nipple, is a discharge from the nipple. The latter, which is present in about 75 per cent of the cases, is usually milky but may be bloody.

Local surgical removal may be followed by recurrence.

In view of the tendency to malignant degeneration shown by these tumors and their tendency to recur after local removal, it is generally believed that they should be treated by removal of the breast.

The following case is reported:

The patient was a man 8 years of age. Fifteen years previously he noticed a small lump under the left nipple and shortly afterward a milk-like discharge from the nipple. The latter persisted until the tumor and nipple were removed three years

proximal breast is permanent.

In the earlier stages of this complaint there is continuous pain in the breast which is generally aching in character and not severe. The nodules of the breast are swollen, painful, and tender, or the whole gland is affected by the disturbance. There

removal. He urges bringing the preventive treatment of cancer of the breast into line with the preventive treatment of cancer elsewhere in the body.

JOSEPH D. ELLIS, M.D.

TRACHEA AND LUNGS

Zusch, L. H. Subcutaneous Rupture of the Trachea. *Ann. M. J.* 9, 2, 45.

To fit the case of

Four incisions made in the skin over the front and back of the thorax as an emergency measure released air and decreased the cyanosis and dyspnea. The patient having been placed under ether anesthesia, the trachea was exposed through a thyroidectomy incision. It then showed an almost complete transverse rent between the second and third cartilages, only the posterior muscular coat remaining intact. Although

the tracheal ring was closed without drainage and healed by primary intention. The subcutaneous emphysema gradually subsided. Except for a slight cough lasting two weeks, the patient made an uneventful recovery.

In a study of the etiology of the reported cases, the damage to the trachea appeared to be out of proportion to the external strain, such as that due to throwing the head backward suddenly, straining during labor, coughing in bronchitis, and croup, and the expulsive efforts caused by the presence of a foreign body. Increased intratracheal pressure while holding the breath with the epiglottis closed seems to predispose the trachea to rupture from a light external shock.

In the cases in which autopsy was performed the death was due chiefly to suffocation caused by the presence of air and blood in the mediastinum.

Of twenty-nine patients treated by various palliative methods, such as the application of cold compresses, immobilization of the trachea, and elevation afterward. Of eleven patients subjected to tracheostomy eight recovered. Two who had secondary abscesses incised also recovered. Of three patients treated by blood-letting with other palliative methods, two recovered. Recovery resulted also in four cases given radical operative treatment. Patient who received immediate attention had less subsequent dyspnea. Twenty died within forty-eight hours. The total mortality was 54 per cent.

In conclusion the

seems out of proportion to the force of the causal agent that fracturing the emphysematous region is a valuable adjunct to the treatment relieving cyanosis and dyspnea until radical measures can be instituted, and that the complete closure of the wound without a gauze pack may be tried first.

WALTER C. ROBERT, M.D.

Yonkers, N. Y. Two Cases of Laceration Treated Bronchoscopically. *N. York M. J. & Med Rev.* 1922, 27: 741.

In the first case reported the left main bronchus was occluded 2 cm. from the bifurcation by a smooth

rounded mass which the author diagnosed as a fibroma.

Under local anesthesia the growth was removed piecemeal with the use of biopsy forceps. After the patency of the bronchus was re-established the patient began to improve and within six weeks was free of all symptoms.

In the second case bronchoscopic examination revealed an intrabronchial mass which was granular in appearance and suggested malignancy. This case was treated by radium emanation placed by means of the bronchoscope, and the external application of a radium capsule. A symptomatic recovery followed and at the time this article was written (one month later) the patient appeared to be well.

RAULPH B. BETTANY, M.D.

Van Thun, Tension Pneumothorax with a Case of Pneumopericardium (Spannungspneumothorax mit Pericardialpneumonie). *Ungl. f. Laryng. u. Rhinol.* 1920.

Pneumothorax follows injuries to the thorax and lungs. Under certain conditions it has a tension pneumothorax so which the continually increasing pressure on one side of the thoracic cavity causes displacement and compression of the organs on the other side.

The conditions under which a tension pneumothorax occurs are:

1. The presence of a valve-like lesion of the lung.

Expiration with a closed glottis (strained, gasping respiration). Under these circumstances air is pressed from the other lung through the trachea into the injured lung by the action of the muscles of expiration.

2. The presence of a lesion of the thorax in addition to a lesion of the lung which makes the expiratory power of the diseased side ineffective in comparison with that of the healthy side. In other cases marked compression of the lung soon occurs and at the following inspiration a pressure compression develops so that the valvular action ceases.

3. A small lesion which does not permit the escape of air.

The treatment consists in one or more punctures immediately after the insertion of the trocar the air escapes under strong pressure. Recurrences are rare. As soon as the air is let out the valve closes, quickly becomes adherent and ultimately becomes firmly attached.

The signs of tension pneumothorax are a tympanic sound on percussion, a lagging behind of the involved side of the thorax in breathing, absence of the sounds of respiration and displacement of organs.

Sudden death due to compression of the heart and large vessels is not rare.

The histories of three cases of tension pneumothorax and one case of pneumopericardium are given in detail.

SALVATORE (2)

PHARYNX AND ESOPHAGUS

Urrutia, L.: Diffuse Dilatation of the Esophagus (Algunas consideraciones sobre la dilatación difusa del esófago). *Arch. españ. de ciruj. d. apar. d. gral.* 92: 1, 39.

In Urrutia's opinion diffuse dilatation of the esophagus must be regarded as a congenital malformation with progressive development which is manifested at a certain time because of the development of esophagitis and secondary cardiospasm.

the ventro-dorsal and oblique directions after evacuation of the diverticulum shows a hemispherical shadow sharply outlined below at the level of the jugulum without any process formation. Esophagoscopy which is always unpleasant and not always possible in the cases of older persons with a less elastic vertebral column, allows a direct visualization and reveals also secondary changes such as ulcer formation.

the diverticulum was exposed under conduction anesthesia, tied off like a hernial sac, extirpated, and the wound closed with an invagination suture. Primary healing resulted. Special care must be given in the after-treatment. The author prefers a one stage operation. HORNWALL (Z)

Sellert, E.: Extra-Oesophageal Foreign Bodies (Über extraoesophageale Fremdkörper). *Zschr. f. Laryng. Rhinol.* 1922 32, 46.

The diagnosis of extra oesophageal foreign bodies is discussed first. This is based on a history of the swallowing of a foreign body, difficulties in deglutition, possibly haemorrhage and fever with signs of inflammation in the peri-oesophageal tissue and possibly emphysema, and symptoms in other organs difficult to interpret. The oesophagoscope yields entirely negative findings or reveals the site of the penetrator (as a fresh, granululating or healed wound).

Operation should be performed—especially if the site of the foreign body is not known.

negative findings may be

removed a piece of bone. On admission to the hospital three days later she had difficulty in deglutition, attacks of coughing, hoarseness, and tenderness on the left side of the throat at the level of

esophagus, but a piece of bone 6 cm. long and 1 cm. wide was removed from the loose connective tissue behind the esophagus on the left side. At the end of four weeks there was complete healing and no difficulty in swallowing. KROHN (Z)

shows

Zenker's pouch or diverticulum is a pouch in the posterior wall of the pharynx, immediately above the opening into the esophagus. As the wall has no longitudinal muscle at this point and as the ring musculature dilates, the pouching can occur very readily, especially when gastric conditions at the mouth of the esophagus occur as a result of heart eating and the swallowing of large quantities of food at one time. The case reported shows very distinctly that aside from the anatomical conditions mechanical ones are also responsible. The patient who habitually ate his meals hastily developed dysphagia which, though hidden by complications and therefore unrecognized for years, gradually assumed the character of a dysphagia due to a diverticulum.

The most important of the anamnesis symptoms of Zenker's diverticulum are discussed briefly. They include increased salivation, irritation evoking cough (cough reflex),

leucorrhoea

The methods of examination to establish the diagnosis include

the by a

esophagus can usually be penetrated. A roentgenoscopic examination with contrast media made in

Four incisions made in the skin over the front and back of the thorax as an emergency measure re-

rounded mass which the author diagnosed as a fibroma

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RAIMON B. BERTMAN, M.D.

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organs

Sudden death due to compression of the heart and large vessels is not rare

The histories of three cases of tension pneumothorax and one case of pneumoperitoneum are given in detail

SAXENA (2)

cartilages only the posterior muscular coat remaining intact. Although the patient vomited and aspirated food into the trachea, the tear was closed completely by interrupted chromic catgut sutures extending around the contiguous tracheal rings

recovery

external shock

In the cases in which autopsy was performed the death was due chiefly to suffocation caused by the presence of air and blood in the mediastinum

Of twenty-nine patients treated by various

secondary abscesses treated also recovered. Of

34 per cent

In conclusion the author states that the best

pack may be tried first

WALTER C. BERRY, M.D.

Yorker S. Two Cases of Lung Tumor Treated Bronchoscopically. *N. York M. J. & Med. Rec.* 1922 CIV 74

In the first case reported the left main bronchus was occluded 3 in from the bifurcation by a smooth

PHARYNX AND ESOPHAGUS

Urrutia, L. Diffuse Dilatation of the Esophagus
(Algunas consideraciones sobre la dilatación difusa
del esófago). *Arch. esp. d. enferm. d. apar. digest.*
1932, 159

In Urrutia's opinion diffuse dilatation of the

the ventro-dorsal and oblique directions after evacuation of the diverticulum shows a hemispherical shadow sharply outlined below at the level of the jugulum without any process formation. Esophagoscopy which is always unpleasant and not always possible in the cases of older persons with a less elastic vertebral column, allows direct visualization and reveals also secondary changes such as ulcer formation.

into the air passages during deep sleep.

In the early stages the development of the diverticulum can be prevented by care in eating, but later operation is indicated. In the author's case the diverticulum was exposed under conduction

Note

one-stage operation

HINTHAM (2)

Seffert, E. Extra-Esophageal Foreign Bodies
(Ueber extraesophageale Fremdkörper). *Zschr. f.*
Laryng. Rhinol. 9, 11, 46

The diagnosis of extra esophageal foreign bodies is discussed first. This is based on a history of the swallowing of a foreign body, difficulties in deglutition, possibly hemorrhage and fever with signs of inflammation in the peri-esophageal tissue, and possibly emphysema, and symptoms in other organs difficult to interpret. The esophagoscope yields entirely negative findings or reveals the site of the penetration as a fresh granulating, or healed wound.

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Zenker pouch oriculum is a pouch in the posterior wall of the pharynx, immediately above

mouth of the esophagus occur as a result of hasty eating and the swallowing of large quantities of food at one time. The case reported above very distinctly that aside from the anatomical conditions, mechanical causes are also responsible. The patient who habitually ate his meals hastily developed a dysphagia which, though hidden by complications and therefore unrecognized for years, gradually assumed the character of a dysphagia due to a diverticulum.

The most important of the various symptoms of Zenker diverticulum are discussed briefly. They include increased salivation, irritation, excitation

may be

glutition attacks of coughing, hoarseness and tenderness on the left side of the throat at the level of the lower margin of the larynx. There was no fever and no external swelling. Examination with

laryngoscopy

The methods of examination to establish the diagnosis include sounding, roentgenoscopy and esophagoscopy. The sound meets resistance at a typical spot (about 2 cm. behind the teeth). With second sound introduced along side of the first the esophagus can usually be penetrated. A recent gastroscopic examination with contrast media made in

was removed from the loose connective tissue behind the esophagus on the left side. At the end of four weeks there was complete healing and no difficulty in swallowing. (2)

MISCELLANEOUS

Bernow A.: Therapeutic Oleothorax (L'ok. thora thérapeutique) *Med. Acad. de med. Par.* 102 (1934) 457

By "oleothorax the author means mainly intrapleural injections of oil. He has used this

6 per cent, and small lymphocytes, 33 per cent. The blood Wassermann was negative. One of the axillary nodes removed later showed nothing characteristic histologically.

On each of two nights following the patient's

Fluoroscopic examination at the time of the first treatment revealed a walnut-sized mass in the epigastrium near the median line which was believed to be a gland. There were no further attacks of asphyxia after the first treatment. After three treatments a roentgenogram showed the area of density to be about 5 cm. narrower and distinctly less dense. The findings by percussion agreed with this. Breath sounds were better heard and the heart sounds distinct where they had been obliterated.

At the end of three months the boy had gained 7 lbs. and had good color and abundant energy.

In one of the cases mentioned Barpus evacuated 1,000, 600 and 300 ccm. of pus on three successive days and replaced it by massive injections of 4 to 7 per cent. gonemol. The final injection was 35 ccm. of 10 per cent. gonemol. The oil is absorbed more or less rapidly. The gonemol percentage is the higher the smaller the quantity of the injection, being 5 per cent. in injections of from 400 to 600 ccm., but 10 per cent. in injections of from 50 to 300 ccm. The injected oil must of course be sterile.

W. A. No.

Cooley T. B.: An Unusual Case of Mediastinal Tumor. *Arch. Pediat.* 9, 1932, 393

A 7-year-old boy with a mediastinal tumor had had a sudden and severe attack of dyspnea during the night. Three years before he had been in the hospital for a few days with an attack of bronchitis. His family history was negative. He was of medium size, pale, and rather thin.

otherwise healthy and because of the variation in the density of the shadow. H. W. Froy, M.D.

A. - ... ? ...

tion, Schultze's ang., and other measures had no influence on the condition. The child dying unexpectedly after it was born.

At autopsy the stomach, the colon, and several loops of small intestine were found in the left thoracic cavity. During artificial respiration the beating of the heart had been felt on the right side but not on the left side and dextrocardia had been assumed erroneously. The heart and the left lung had been pushed completely over to the right side. It was evident that the right lung had breathed little as a piece of it floated in water. The left

border which normally has a ... blood examination showed hemoglobin 80 per cent, red blood cells 4,300,000, white blood cells, 11,000 polymorphonuclears, 63 per cent. large lymphocytes,

differentiated. In the latter the hernial sac, formed from the pleura and peritoneum, is absent and the condition is in reality a prolapse of the abdominal

organs into the thoracic cavity. The false form is six to eight times as common as the true form.
Tamm (Z)

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Halloway J. K. Lateral Ventral Hernia. *J. Am. Surg. Soc.* 1910, 677

Excluding umbilical, lumbar and postoperative or traumatic types of hernia, we may define spontaneous ventral hernia as a hernia which appears at an abnormal opening in the abdominal wall without explainable reason, and usually presenting

spontaneous origin of a pre-existing hernia or sac.

Hernia in the line of Spiegel are usually single but may be multiple. The patient may have been aware of the presence of an inconstant tumor mass in his side.

Sometimes the hernia may be seen or felt. The intestinal type presents more difficulties in the diagnosis. At times there is no protrusion or depression. In a fat person the hernia may be entirely hidden in subcutaneous fatty tissue.

Lateral ventral hernia may be present for an indefinite time unobserved and entirely without symptoms. The patient may be aware of the presence of a disappearing painful tumor but usually does not understand its significance. He comes to the surgeon because he associates the tumor with a certain amount of abdominal pain, burning, or tearing which hinders his work. Usually the tumor disappears

spontaneously
when the patient is lying upon his back.

In other cases the tumor may become an orifice. If the patient leans forward the tumor may appear. Any thing which increases the intra-abdominal pressure

may cause the hernia to become an orifice. The extremely distensible sac with a very narrow neck and orifice favors such a complication. Gangrene rapidly follows.

Operation consists in freely exposing and completely eviscerating the sac and bisecting its orifice. The overlying structures are then to be closed in layers without necessarily overlapping the fascial or muscle plates.

In cases where the location of the hernia is definite we may accept the patient's idea of the location as a key to the situation and make our incision accordingly though some operators prefer

W. Tamm, L. F. The Importance of Early Operation in Congenital Umbilical Hernia. *Boston M. & S. J.* 1910, 875

In cases of small congenital umbilical hernia the outlook is fairly good if the condition is recognized early and operation is undertaken while the sac is still moist and before the hernia has been increased in size by the taking of food into the stomach. Unless the hernia can be reduced and the opening closed by operation the prognosis is very grave. Resection of viscera and incomplete closure of the defect are usually followed by death. Operations performed during the first few hours after birth give the best results but the mortality in such cases is about 50 per cent.

Cases of large hernia in which the viscera are irreducible and there is no chance of closing the opening are inoperable.

The two methods of operation are the extraperitoneal and the intraperitoneal.

The extraperitoneal operation is the procedure most frequently used because it causes the least shock and its mortality is lowest. The amnion and Wharton's jelly are separated from the underlying peritoneal layer of the sac without opening the

peritoneum.

The intraperitoneal operation is used when it is necessary to open the abdomen to examine the viscera or to deal with peritonitis. If reduction of the liver is difficult it can be facilitated by moving the linea alba to widen the opening and dividing the round ligament of the liver.

CARL R. STRECKER, M.D.

Madigan, J. M. Lumbar Hernia (Hernia lumbi). *Rev. med. & Chirurg.* 1911, 4

Madigan's case of lumbar hernia was that of a girl of 19 years. The abnormality first appeared

isolated. The sac contained loops of small intestine and the lower pole of the left kidney.

Following reduction of its contents the sac was ligated and resected and the beralal ring formed by the deep aponeurosis was sutured. The bone abscess had caused degeneration and atrophy of the surrounding muscles. The bernal had its origin in the triangle of Orzalelt. The child made an excellent recovery. H. A. BERNARD.

Summers, J. E.: Sciatic Nerve. 1. Surg. 1925.
 1355 622

The etiology of ischiatic hernia is obscure. The

In the male these hernias are congenital or ac-

cause of the depth of the bursal ring and the necessity of avoiding the large blood vessels. The

3(01) 1

Induct

Like the author's case, informal constructs were

the coal

These corporales originate from apparently isolated embryonic mesodermal remnants. They

Spachman, J. G.: Retroperitoneal Cysts With
Report of a Case *Uabms Month* 422, 194,
139

In 1913 Jacquot and Faivre were able to collect from the literature only thirteen cases of isolated

to a study by

The cysts may be uniflorous or multiflorous. Their contents vary from a thick, viscid, jelly-like substance to clear water, fluid. They may be

OF UNITED STATES AT LARGE

from children and adolescents

The patients present themselves because of an abdominal tumor the symptoms of which vary with its size.

The author reports the case of a 30-year-old man with a history of severe lumbar backache

tumor extended from 4 cm. below the right costal margin to 10 cm. above the pelvic brim, and in its greatest diameter reached the midline at the level of the umbilicus. It was not movable with respiration or on manipulation. The percussion note was unchanged. The space between the last rib and the iliac crest was normal on both sides. The urine and blood examinations were normal.

At operation the cyst was approached through a right rectus incision and the posterior parietal peritoneum outside of the ascending colon which was pushed toward the midline. The cyst extended from beneath the liver to the pelvic brim. About

ing was due to increased width of the circular muscle coat, which measured 3 to 7 mm. as compared with a normal thickness of 0.5 to 2.5 mm. The cardiac end of the stomach was always normal, although occasionally the pyloric ball of the stomach was

The circular muscle was from two to three times thicker than normal because of a hyperplasia of the unstriated muscle cells of the circular coat. There was no increase in the connective tissue.

Healing after the Fredet-Rammstedt operation

dissected out and excised at the first operation. In the closure of the wound the remaining cyst wall was sutured to the upper end of the incision, packed and drained. There was a copious discharge of seropurulent material. Seven days later the incision

healed. The patient made a satisfactory recovery.

The cyst fluid was seropurulent, yellow white, odorless and sterile on culture. The cyst wall measured 5 by 12 cm. and varied in thickness from a few millimeters to 3 cm. Microscopically it consisted of dense fibrous connective tissue with lymphoid infiltration. The lymphoid areas were glandular in appearance and lined with epithelium. In arrangement the spaces lined with epithelium somewhat resembled kidney tubules.

The author states that in the diagnosis of an abdominal tumor of uncertain origin a retrocort-

related within two weeks. The stomach had returned to its normal size within a month and the gap between the cut ends of the muscle coat had practically disappeared in six weeks because of contracture of the connective-tissue scar. At the end of two years only a thin line of connective-tissue fibers separated these two muscle ends and the

ALLAN L. BURNET, M.D.

Upph. 1. The stomach is

1924, 1925

Utraria conclusions are based on 400 cases of

ALLAN L. BURNET, M.D.

GASTRO-INTESTINAL TRACT

Waldenström, M. The Healing of Hypertrophic Pyloric Stenosis After the Fredet-Rammstedt Operation. *Ann. J. Dis. Child.* 102, 1928, 3.

The author studied the gross and microscopic changes in stomachs with hypertrophic pyloric

may simple gastrojejunal anastomosis should be done only when the patient's general condition

highest the anastomosis

2
3
4
5

is usually small even though it may be higher than that of gastro-enterostomy its end-results fully justify its use.

The mortality in the 80 cases of gastro-enterostomy in the author's series of cases was 0.6 per cent. In thirty-eight cases pyloric excision was done, but the mortality of even simple gastro-enter

When observed before or soon after operation the stomachs were dilated often to twice the size of the normal stomach at the same age were usually empty of food, and always contained a large amount of mucus with thick plug in the pyloric opening. The pylorus was abnormally thick, hard, and increased in length. The pyloric thick-

ostomy was over 5 per cent. The author reserves this operation principally for cases in which the patient's condition contra-indicates the radical operation as he believes it favors the development of secondary jejunal ulcer more frequently than is generally believed.

11) Extent

method of

author's cases was 6.6 per cent but in his last

Following the injection into the abdominal cavity of guinea pigs of cultures obtained from cases of

infection in the stomach destroyed, and secondary ulcer prevented

W. A. BURNHAM

the perforation and cleansing and drainage of the abdominal cavity (gastro-enterostomy) may be done in all if not in all cases.

acid was present in only eleven. A jejunal ulcer was found only once after gastrectomy whereas in the series of 180 cases of gastro-enterostomy it occurred eight times. In Utricus's opinion jejunal ulcer should be treated radically by resection of the anastomosis with the ulcer and extensive gastricotomy.

A jejuno-colic fistula was found in eight cases

after the operation, and in the others the condition recurred.

W. A. BURNHAM

Kotzareff, A. The Surgical Treatment of Perforated Gastroduodenal Ulcers (Perforation des ulcères gastro-duodénaux et leur traitement chirurgical). Lyon chirurgical 1913, 10, 53.

Kotzareff favors deferring gastro-enterostomy in cases in which after suture of the perforation

of antrum resection is immediate cure by means of resection of the ulcer, physiological cure or the prevention of recurrence through decrease in the acidity and further relief through rapid emptying of the stomach.

DOUGLAS (L)

Van Hook, W. The Problems and the Progress of Gastric Ulcer Surgery. J. Am. Med. Ass. 1913, 10, 173.

cause the development of a second gastric ulcer in the operative lesions.

Kotzareff accepts the view that gastritis if not the only cause, is at least one of the factors responsible for the chronicity of round ulcer of the stomach.

stomach including the ulcer followed by gastro-jejunostomy. The author draws the following conclusions:

1. Intelligent patients should be told that secondary operations must sometimes be done in order to give them the best chance for recovery under the least radical methods of intervention.

2. Gastro-enterostomy has its recognized place in cases of ulcer near the pylorus with symptoms of obstruction, especially if the patient is well cared for afterward.

3. Partial pylorogastroectomy after the Billroth I method has its place in the treatment of callous ulcers, multiple ulcers, ulcers remote from the pylorus, and cases complicated by perforation and penetration of the neighboring organs.

ulcers are responsible for the secondary ulcer. As secondary ulcers occur only after gastro-enterostomy or some other operation, such as a pyloroplasty, the Billroth I resection of the stomach or sleeve resection of the ulcer in the midgastric region, should be performed instead, if possible.

J. E. BRANTON, M.D.

WILKIE, D. P. D. Acute Intestinal Obstruction. *Lancet* 1923, *cm*, 3: 35.

years. The death rate of many acute abdominal

obliged to perform operations beyond his ability and in the majority of cases in which little benefit has resulted the more extensive operation may be performed under chosen and favorable conditions.

J. E. BRANTON, M.D.

WILKIE, A. O. The Cause and Prevention of Gastrojejunal and Jejunal Ulcer. *Am. J. Surg.* 1923, 26: 608.

The number of postoperative gastrojejunal and jejunal ulcers reported is growing. The problem as to their cause is important and very baffling.

The dominant factors which precede the secondary ulcerations are (1) an operation, and (2) a pre-existing gastric or duodenal ulcer.

Various factors in the operative technique have been suggested as causes, as the position of the stomach, the use of clamps, the use of non-absorbable suture material, marginal necrosis, injury of tissues, etc. If these were of importance how the incidence of ulcer would be much greater.

in the case with the blood supply of a segment of

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the post course in high obstruction is due partly to the loss of fluid by vomiting. This loss can be partly compensated for by

the secondary ulcer.

The author has observed that secondary ulcers occur only in those cases of gastro-enterostomy

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proctocolectomy are broken up by the crepita of the intestinal juices

of the intestine
Abstract 1000

obstruction except in late cases with involvement of the peritoneal proctocolectomy level and cases of high obstruction. It is sufficient to milk the poisonous contents down into the sigmoid gut where it is to pass off. In this, petrous injections and enemas may be of aid.

Immediate re-adhesion. In obstruction due to a tumor in the colon a colectomy is the best treatment.

Manson (Houston) M.D.

Case report of a patient with a large tumor of the sigmoid colon.

Abdominal peritonitis (1) Pelvic Route of and
see list 245

The case reported by Cignoni gives him the opportunity to discuss the various types of membrane which may cause stricture of the small intestine and also the various theories regarding their origin. Of the latter Cignoni regards as rational only those attributing them to embryonic factors and inflammation.

To the embryonic type of pericolic membrane belongs the true Jackson membrane. Both the symptoms and the operative findings indicate a congenital origin.

The membrane due to inflammation may also cause obstruction of the fecal current and their inflammatory nature is clearly evident at operation.

characteristics which suggest a congenital origin and at the same time show evidence of inflammatory change. In such cases it is possible that inflammatory processes set up membranous peritonitis in a congenital membrane of the Jackson type.

In cases of the true Jackson type of membrane laparotomy followed by removal of the membrane has resulted in definite recovery without recurrence

In some cases of membranous peritonitis, the cause of many cases.

Therapeutic in such cases.

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ext. h. v. membranes

W. A. Barry

Thomas, T. T. Acute Intussusception. 1924
M. J. 1924, 1925, 1926

This case of

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shaped constriction which may be situated at any

has occurred the invaginated portion may slough and may be discharged through the rectum.

colostomy in ten cases, with a mortality of 100 per cent and a lateral anastomosis above and below the non-gangrenous intussusception in three cases, with a mortality of 33 1/3 per cent.

If the symptoms have been present less than

from this condition

(1) 5 Proctos. M.D.

Reinhard, W: Arterioenteric Occlusion of the Duodenum (Der Arterioenterische Duodenalverschluss) *Deutsche Zeitschr f Chir* 1921 cxxvii, 39

The author distinguishes two forms of arterioenteric occlusion of the duodenum. In the first, the lower portion of the duodenum may very easily result. If this does not occur, the striking picture of high ileus is absent and the clinical picture is dominated by the acute dilation of the stomach.

external circumstance such as the shock of an operation or simple paroxysms. In this case dilation of the stomach is absent in the first stage, and clinical examination reveals motor unrest of the organ which is working convulsively to overcome the obstruction in the duodenum. Atony and dilation of the stomach are secondary. Therefore the condition sets in with severe symptoms of high intestinal occlusion.

In acute dilation of the stomach without duodenal constriction, siphoning off of the contents of the stomach is a very important measure.

testinal activity and the administration of copious amounts of normal salt solution subcutaneously intra-venously and by rectum are also necessary. Laparotomy should be considered only as a last resort. A gastro-enterostomy is of no benefit when the stomach is atonic and dilated. Anastomosis between the duodenum and the collapsed small intestine is not advised.

carried out is not so

Gardner, J: Three Cases of Duodenal Diverticula (Diverticulos duodenales tres casos) *Scienze med* 1922, xxvi, 309

Duodenal diverticula are rare. In 9 Baldwin collected eighty-two cases from the literature.

Some authors believe that diverticula of the first portion of the duodenum are acquired and those of the second portion are congenital. In some cases a duodenal diverticulum opens into the pancreas and sets up the symptoms of chronic pancreatitis. It may be impossible to diagnose the condition clinically but the sac may be easily detected by the X-ray.

In all three of the author's cases the abnormality occurred in the first portion of the duodenum and the diagnosis was made by means of the X-ray. The sac was easily detected by the X-ray.

normal.

The second case was that of a woman of 32 who complained of pain in the left hypochondrium, the epigastrium, and the right shoulder. At operation the gall bladder was found adherent to the duodenum but was free from calculi. There was intense periduodenitis. Section of the adhesions revealed two slightly strangulated diverticula on the anterior surface of the first part of the duodenum. A gastro-enterostomy was done. Two

W A BRYAN

Christie, G W: Acute Inflammation of a Large Diverticulum of the Jejunum with Perforation *Brit M J* 1922, vi, 600

The case reported was that of a woman 48 years of age who had suffered for years with flatulence. Occasionally she had attacks of pain which kept her in bed for a day.

on

at

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it

Palpation revealed a round mass the size of an orange.

T

to the jejunum by a pedicle and at this point the

pus but the spread of its contents had been prevented by the omentum.

1 E BRYAN, M D

Walsh, R. E. Acute Perforated Meckel's Diverticulum. *Med Times* 9:1, 33

beyond the farthest point which can be reached

authorities vary as to the value of pre-operative radium treatment but they are agreed that after operation radium should not be employed until several days have passed

colon

The interval between the preliminary operation

but was removed with the stomach in the abdomen was closed in the usual way. Her drainage by means of a rubber tube. The patient made an uneventful recovery. H. N. FINE, M.D.

Lefebvre et
Aucourt
propose
d'une
Par 922 XVI, 6

being covered with an oiled gauze and
left in position for five or more days.

When the gauze is removed after the Kraske operation, the dopack principle is employed—frequent dressing and irrigation, sitz baths, etc.

I. W. BUCK, M.D.

Hays, G. L.: Valvulus of the Sigmoid. *Ann Surg* 19: 170, 124

operated upon by Kraske

provocative Hunter DENN, M.D.

Critt, G. W. Surgical Treatment of Cancer of the Large Intestine. *Practitioner* 19: 19, 33
599

Radium must be used carefully. If employed in sufficient dosage to affect the cancer cells which be

caps and cautery method. If possible a few inches were left attached to the rectum and descending colon. When conditions permitted a lateral anastomosis was done. Otherwise the Murphy button was used.

Three of the patients recovered without particular incident and were discharged cured. One died, and in one case an obstruction developed on the fourth day necessitating the formation of an artificial anus. This patient also developed a fecal fistula which has never entirely closed.

The primary cause of volvulus is a probably congenital enlargement of the sigmoid. Next in importance are constipation, adhesions, operations, and tumor plus inflammation. The condition usually occurs after the fortieth year of age and is four

percent in two cases. Local tenderness on the left side is usually present. The abdomen is distended and strong peristalsis is visible. A tense smooth tumor may be made out in the iliac fossa. As a late event vomiting occurs.

Enemas should be tried with the patient in the knee-chest position. If these fail, operation should be performed without delay. The author recommends resection of the sigmoid.

O. S. PROCTOR, M.D.

Washington, D. C.

The autopsy in the first case that of a man 61 years old showed (1) enlargement of the

clinical symptoms but there was enlargement of the liver. There was a striking disproportion between the size of the primary tumor and the size and number of the metastases.

with small nodes (3) carcinomatous peritonitis in the retroperitoneal space and (4) secondary carci-

noma of the liver and the periaortal lymph nodes. Histologically the tumor proved to be a malignant epithelial growth consisting of medium and large epithelial cells. In many areas it showed mucous degeneration. According to the history the onset of the disease occurred two months before death with pain in the pelvis and frequent evacuation of the bowels but no intestinal stenosis. (Port 2)

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Fullerton, A. A Modification of the Operation of Cholecystenterostomy. *Bull. M. J.* 92:1995

the case was not as the gall-bladder was infected

results of cases

attention

I. E. BRIDGES, M.D.

Philadelphia, Pa.

1922, February 25

In the cases considered only the gall-bladder was operated upon. Cases in which a cholecystectomy was done as a complement to a common duct operation are excluded. The 60 cases reviewed have been followed for periods varying from one to twenty years. (Port 2)

Eight others who were not

Therefore fifty-four of the hundred cases showed that the cholecystectomy gave excellent immediate

results. Only seven of these patients have been under observation for less than two years after the operation.

Thirty four patients, while well and expressing

may sometimes be felt in the epigastrium. The course is usually short.

The case reported was that of a 25 year old Italian man who developed mumps 100 weeks

In certain cases the postoperative results were less satisfactory. In four there were crises of hepatic colic and in four others disturbances due to adhesions between the duodenum or the hepatic flexure of the colon and the lower surface of the liver. In three there were severe gastric disturbances due to

may be found.

The minor disturbances arose particularly when the gall bladder contained multiple calculi. In such cases their incidence was 27.8 per cent while in cases of non-calculous cholecystitis it was only 5 per cent.

upon the time in the case of the patient who had a history of acute metastatic medical treatment. Such results ought to lead to an extension of the

transverse strip across the abdomen about 6 cm wide which merged into flaps in the flanks.

clear

During the reoperation its capsule was found in-

Parsons, L. W.: Pancreatitis Following Mumps. Report of a Case with Operation. *Am. J. M. Sc.* 9, Jan 1893.

The author reports a case of pancreatitis following mumps in which objective evidence of the disease was seen at operation. Pancreatitis as a complication of mumps is not mentioned in modern text books but the similarity in the structure of the pancreas and the parotid glands and their con-

nections, and the abdomen is noted. Subsequently the patient developed bronchopneumonia and a pleurisy. The latter was drained four weeks after the original operation.

proceeds

11-14-1910

Albee, H.: Hydrated Cysts of the Pancreas. *Surg. Gynec. & Obst.* 2, 1911, 749.

Albee reports a case of his own and ten others from the literature.

Hydatid cysts occur in the liver in 42 per cent of cases, but are found in the pancreas in only 0.12 per cent. These statistics were collected from the literature.

In the author's opinion the infection is spread by dogs and the ova may be ingested in vegetables or water. He believes that the pancreas becomes infected through the digestive tract, the organisms being brought to it by the blood stream.

The pancreatic cysts develop in the direction of least resistance and may project into the lesser omentum below the transverse mesocolon, or into the gastroduodenal ligament. Often there are adhesions to the stomach, colon, and liver. Cysts developing

develop as retroperitoneal tumors are usually symptomless but in some cases cause pain and a marked tumefaction.

It is easily determined whether an abdominal tumor is parietal or intra-abdominal. Intra-peri-

neumal tumors are usually found in front of them. A tumor which has developed from the mesentery usually has a me-

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force the stomach, and sometimes the transverse colon, forward, and often appear at first to be below the kidney. The cyst continues growing until, in most cases, evident tumefaction is produced. In other cases the phenomena of canalicular compression play a more important part. Suppuration may take place. Spontaneous rupture has not been observed.

Hydatid cysts of the pancreas may be divided into three groups according to the pathological anatomy, as follows:

1. Those which develop in a latent or almost latent manner so that they produce a syndrome of palpable or appreciable tumor.

2. Those which develop rapidly, causing symptoms resembling those of carcinoma of the bile duct or of the head of the pancreas.

3. Those that cause symptoms resembling those

peculiar to this affection, being common to all

will give the easiest delivery of the tumor. The

As a rule
evacuating
should be
delivered

have been removed, the cavity should be dried with gauze soaked in ether containing some antiseptic substance.

Albo believes it is best to close the cyst if their contents are clear unless they are very large or if

when icterus is very pronounced and there are indications for rapid drainage of bile. In cases of duodenal compression gastro-enterostomy may be necessary.

O. S. PROCTOR, M. D.

There may be light pain in the epigastrium, oppression in the epigastrium, nausea, vomiting, and a visceral or gastric disturbance. Cysts of the head of the pancreas simulating a cancer of the bile duct or of the head of the pancreas cause the following signs and symptoms: (1) general emaciation (2) a bronzing of the skin (3) icterus, which is usually persistent and progressive and associated with dilation of the gall bladder (4) pain in the pancreatic area (5) a erosion to fats and oils (6) pain radiating to the back and the left lumbar region and (7) a tumefaction, which is not always palpable even in cachectic subjects. Cysts which

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS,
MUSCLES, TENDONS, ETC.

Baccarini L. A Case of Bone Cyst (Un caso di cisti
ossea) *Arch Ital Ch* 1913 35

term "bone cyst"
cavities
The common bone cavities of different origins are

From the point of view of pathogenesis there are many types of osseous cavities: parietic cysts, congenital cysts, cystic cavities due to the dissolution of tumors, cysts due to liquefaction of bone tissue and cavity formation occurring especially in the long bones, which lack an epithelial or endothelial lining and the origin of which is disputed. It is of this last class that Baccarini writes. The various theories regarding their origin are discussed in detail.

involve the much so as to favor the formation of a pseudo-cystic cavity. Small continuously forming

Strom, J. H.: Osteitis Fibrosa Cystica: A Pathologic Consideration. *J Indiana M Ass*, 1922, v 85

crises

Gendrie, K. The Hopping Knee and the Snapping Knee (Das hüpfende Knie und das schnappende Knie) *Zentr f orthop Chir* 1913, 60

In a few years Gendrie has observed a

the first decade of life,
regions are most active since it is here that the
of the bones is particularly localized

from reported

the old and when
certain, the
anterior

is such a case as

a load borne at 40 to 60 degrees of flexion. The X-ray showed deposits on the head of the tibia, over which the tendon slipped during movement (causing the noise).

In these three cases the snapping knee had entirely different anatomical bases. In Gaugelen

most complete cure.

Gaugelen holds the terms "springing knee" and "elastic knee" to be erroneous. Two forms are to be distinguished, the articular and the peri-articular. The condition which Gaugelen calls "hopping knee" is a variety of the articular form of snapping knee. Aside from hydro-artic and medico-mechanical treatment, there must be in the peri-articular form, surgical removal of the deposits and evulsion which hinder the movement of the tendons.

WORKS (2)

Koettner H. Tennis Leg (Das Tennis-bein). Deutsche med. Wochenschr. 1912, 37, 12, 47.

The term "tennis leg" is applied to the simultaneous rupture of the triceps surae which is seen with comparative frequency since the game of tennis has become popular in Germany. As a rule the condition occurs in persons past middle age because of the decrease in the elasticity of their tendons and muscles.

The condition was bilateral. The injury is caused by hyperextension of the muscle following rapidly on its contraction to

normally. Traction bandages, massage, and confinement to bed are distinctly contra-indicated. Immediately after the injury the limb should be elevated in order to arrest the hemorrhage. In more severe cases adhesive plaster strapping from just above the ankle joint to the middle of the calf may be applied, but even in such cases it is essential that immediate efforts be made to resume walking.

PARRIS (2)

Baernsch, W. The Etiology of Koehler's Disease: A Change in the Second Metatarsophalangeal Joint (Ueber die Aetiologie der Koehlerschen Krankheit Veranlassung am Metatarsophalangealgelenk). Deutsche med. Wochenschr. 9, 21, 51.

Baernsch describes briefly the typical changes in

metatarsophalangeal joint occurring at intervals for a year. Injury was denied but the patient admitted that she was almost always barefooted, wearing stockings and wooden shoes only in the winter. The X-ray showed the typical picture of Koehler's disease: loose tuberculous, and late

fractured, and if he carries a lighter load for a long period, the second metatarsus will be bent down, the first one bent up.

must first be raised. If the local symptoms are serious, excision of the joint may be indicated.

In conclusion Baernsch urges that a suitable name be given this disease picture in order to prevent its confusion with other Koehler diseases.

LOEBLICH (2)

FRACTURES AND DISLOCATIONS

Lambotte A. Encircling Fractures with Metal Strips (Contribution au cerclage des fractures des os longs avec des rubans métalliques). Presse med. Par. 9, 2, 1912, 590.

In Lambotte's opinion, the method of encircling fractures with metallic ribbon devised by Parham

SURGERY OF TAIL EXTREMITIES

CONDITIONS OF THE BONES, JOINTS,
MUSCLES, TENDONS ETC.

Baccarini, L.: A Case of Bone Cyst (Un cas de cyste osseux) Arch. med. et chir. 1932. 211

on 11/11/2011

Numerous bone avulsals of different origin are termed bone cysts. Jerns has recently divided these

involve the vessels so as to favor the formation of a pseudo-cystic cavity. Small, continuously (order

W. A. BERTMAN

Mason, V. H. Otititis Fibrosa Cytaria: A Pathologic Consideration. *J Indiana M Ass* 1913, 17, 81.

加藤 浩吉 田中 孝典 山崎 孝典

satisfaction, moderate enlargement, and a strikingly
 it is reversible on onset, usually painless and associated
 with few early symptoms.

Abstract

In a case observed by Racciani that of a boy of 6 years a cystic condition of the upper extremity of the radius was found at operation. Histologic

and dependent, is not under arrest.

The etiology is obscure. Many regard the disease as a fraction of diabetes. Various metabolic and glandular disturbances have been suggested as causes.

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regions of
teristic of

the first decade of life an epoch in which these regions are most active since it is here that the leavening of the bones, particularly localized

Gumbale, K. The Hopping Knee and the Snapping Knee (Das hüpfende Knie und das schnappende Knie). *Zeitschr f orthop Chir* 19 ebt, 60

In the last few years Gausels has observed a

SURGERY OF THE SPINAL COLUMN AND CORD

100

signs, particularly the roentgen findings which vary according to the age of the patient, the foramen coccygeum, the hypertrophosis, and the pain caused by pressure on the defective vertebra.

Von Finck tabulates the signs he has found. On the basis of the autopsy findings in the cases of forty-six new-born infants he divides the cases into two groups. In the first group the most important condition is absence of the spinal process or its rudimentary development. In the second it is absence of the arch. The higher the defect and the more complete it is, the more severe the disease picture.

Particularly grave are defects occurring in the arches of the upper vertebrae, as in such cases a considerable fatty growth takes place in the vertebral canal. In the clinical examination it is therefore necessary to determine the presence or absence, the shape and the size of the spinal processes and the height of the disturbance and its extension. The prognosis is particularly unfavorable in cases in which a coccyx is found in the center of the hairy field.

Snow (2)

clinic, 35 per cent showed signs of this condition. Other surgeons have found it of frequent occurrence and have called attention to the diversity of the

SURGERY OF THE NERVOUS SYSTEM

Form H O The Direct Stimulation of Peripheral
Nerves Rules for Procedure in the Operating
Room Surg Gen or Obs 9 2, rev 8 0

Rule After careful dissection the nerve should be freed for a sufficient distance depending upon the local condition. It should not be stripped clean any further than necessary as too extensive stripping will impair the circulation to its sheath.

Rule 3. In the isolation of the nerve from scar or adherent tissues, responses may be evoked by the mechanical stimulation. Observation of these responses is of importance because they indicate the functional state of the nerve and the muscle it innervates.

Rule 3. Before faradic stimulation, the nerve previously freed should be lifted up on a glass hook, to isolate it from all other tissues. If the nerve is found to be divided, the segment to be stimulated should be lifted up by a suture inserted through the end of it.

Rule 4. The nerve should be kept moist with salt solution during stimulation. To prevent spread of the current care must be taken not to drop too much solution in the wound.

Rule 5. In faradic stimulation bipolar electrodes are more practical than unipolar electrodes. The electrodes should be made of metal in order that they may be easily sterilized. The points should be of platinum and so constructed that the distance between them can be changed with ease. It is

expedient to have two platinum wires free for a distance of about 5 cm so that adjustment can be made by bending them.

Rule 6 It is best to begin with a current of moderate strength. Because of spread, a strong current is dangerous and should be used only when a weak or moderate current has been tried previously. The current should be tested by applying the electrode points to the tip of the tongue. A current which is barely perceptible should be employed first. The relationship of the primary to the secondary coil should be noted and maintained for the beginning of the operation. In some nerves, such as the sciatic, and in cases of abundant axons

nerve bundle individually. In this manner it may be determined which part of the nerve has escaped injury and which has regenerated. The neuroma should be examined in the same way.

Rule 9 Note the precise nature of the response
For example in radial pery. injuries stimulate

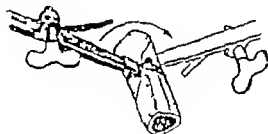
and Putti do not give sufficient solidity and the

bones

Danks, R. B.: Total Removal of the Scapula for
Primary Giant-Cell Sarcoma. *Surg. Gynec. &
Obs.* 912, 1930, 176

T

panying figure



scapula was made

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Kappas, M.: Arthrodesis in Tuberculous of the
Joints by Peri-Articular Implantation of a
Wedge of Bone (Die Arthrodesis durch peri-
artikuläre Knochenkegel-Implantation bei Gelenk-
tuberkulose). *Deutsche Zeitschr. f. Chir.* 9, 1913
316

This is a report of the results of peri-articular
wedge arthrodesis in fourteen cases of tuberculous
arthritis. There was one death from miliary tuber-

and other ex. can

considered malignant because they arise from embryonic rests.

The number of known cases of sacral chordoma is small. The growth occurs more frequently in

tooms are due to compression of the rectum and urethra, and are not different from those caused by other tumors from which the chordoma must be differentiated.

W. A. BARNES.

Wojciechowski, A. The Sympathetic Nervous System and Surgery (Sympathetic Nervous System and Chirurgery). *Ger. Med.* 931 1: 143.

The author gives a general review of the disturbances and diseases of the sympathetic nervous

psychic influences and frequently trophic disturbances.

The therapeutic measures proposed include excision of the sympathetic vascular plexus (Leriche) nerve resection, injections of cocaine or alcohol into the nerves, and resection of the posterior roots. The results of such operations must be judged very critically; the procedure of Leriche deserves consideration.

Tinel's findings in six cases show that the genesis of the condition is not necessarily dependent on

pathetic nerves, operations on the sympathetic ganglia are discarded. By excision of the superior

JULIUS (C)

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Driva, G. G. Traumatic Orbitofacial Emphysema. *Surg. Gynec. & Obst.* 9: 771, 76.

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External pneumatoceles may result from fracture

the frontal sinus associated with an increase in the air pressure of the buccal and nasal cavity caused by blowing the nose. Following a blow on the sacro-lumbar region the patient, a man aged 45 years, fell forward on the floor striking his face. Bleeding from both

from one area to another. Pressure caused pitting. The X-ray plates showed no well-defined fracture, but revealed semilunar-shaped air spaces in the upper portion of both orbits and rather large pneumatic areas in a thin-walled frontal sinus. The swelling gradually decreased and on the fourth day

Miller, J., and Brown, F. J.: Extra-Genital (Germinal Epitheliomata of Congenital Origin. *J. Obst. & Gyn. Br. Emp.* 92: 171, 48.

The authors discuss at some length the embryology and pathology of extragenital chorion-epithelioma of ovum.

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ceptional chorion-epitheliomata occur in both sexes but are more frequent in the male. A large percentage of such tumors develop in the testicle. The

above the elbow note if the wrist, thumb, and fingers extend, and the amount and strength of the movement.

Rule 10 Start with slow interruptions as these facilitate study of the effects of excitation and prevent fatigue. This rule is subject to modification

the central segment and then from the peripheral segment since responses may be obtained from the peripheral segment which cannot be obtained from

stimulation data are the more reliable

R J HANSEN MD

Koerner R. The Present Status of the Neuroblastoma Problem (Der heutige Stand der Neuroblastose) *Berlin Klin Woch* 1922 220 264

After reporting 100 of his own cases of Verocay's

longitudinal axis of the band The rows of nuclei

veins

In the so-called mixed forms, connective tissue is an important element, but is always only a supporting substance In a scirrhous tumor for example it is not the connective tissue the chief constituent, but the epithelial tissue which determines the character of the growth The vessels usually show hyaline degeneration In the tumor itself neither ganglion cells nor nerve fibers are demonstrable

quite different from that of the neuroblastoma, appearing at numerous points in the peripheral nerves while the neuroblastoma is usually single and centrally located The neuroblastoma as a disturbance in development which appears at an early embryonic period, a time when the neuroblasts and the spongioblasts are not yet differentiated JOURNAL (2)

Mikulicz R. Sacral Chordoma (Ein chondrom des Knochens) *Folia Anatomica* 92 1922, 262 264

Next to the base of the brain the sacral region is the most frequent site of chordoma

The first case of sacral chordoma was reported by

Alexander believed that the nervous system is involved in this

Durante

not as a

primary disease is secondary to a local inflammatory

of glia tissue

A neuroblastoma is a benign tumor which is usually solitary and may arise wherever there are nerve fibers motor sensory or sympathetic Its most common sites are the nerve roots as they emerge from the spinal cord and the cerebellopontine angle The tumor is firm and can be easily excised Microscopically it consists of 2 or 3 tissues sharply differentiated from each other In the peripheral portion there is a characteristic head-like marking, which is produced entirely by the irregular distribution of nuclei The edges of the band are formed by layers of nuclei lying close together with their longitudinal axis vertical to the

of the needle may be plugged by a clot but the withdrawal of pure blood is positive proof of the presence of an aneurysm. Tapping is not recommended however unless a prompt operation can be done if a rupture occurs in the path of the needle. Aneurysm of the internal carotid rarely points in the neck.

A brief review of the development of the surgery of the carotid arteries is given. Winslow believes

recovery and permanent cure is fair.

The author gives a list of cases reported in the literature, a table of nineteen cases observed by American surgeons, thirteen of which were operated upon, and a full report of a recent case of his own.

E. C. ROBINSON, M.D.

La Roque, G. P. A Wound of the Femoral Artery and Vein. *J. Surg.* 9: 131, 1901.

is firmly bandaged, elevated, and dressed daily. It is not allowed to hang down and should not be used for at least one month after operation. The patient is warned that a complete cure is scarcely to be expected and that some support must be worn for the rest of his life. Light massage is given from time to time.

The author briefly reports three cases in which he performed Kondoleon's operation. He draws the following conclusions:

1. The Kondoleon operation is a commendable surgical procedure and the only one that gives any decided relief.

2. It is not a curative operation as the enlargement tends to recur especially if the extremity is unsupported.

3. In many cases recurrence can be held in check much more readily than the original enlargement can be controlled.

4. The patient is rendered decidedly more comfortable and does not suffer from pain or ill effects following the operation.

WALTER C. BIRKBECK, M.D.

SURGICAL DIAGNOSIS, PATHOLOGY AND THERAPEUTICS

Vaughan, E. M. Bullet Wounds: Their Interpretation. *J. Am. M. Ass.* 9: 1274, 1910.

Careful study of a bullet wound will usually reveal the course of the bullet and its final destination.

1. A bullet fired at long range and striking the skin at right angles will leave a round wound with beveled edges but without a brush burn.

2. If the missile strikes the skin at an acute angle to the presenting surface the tissue is pushed until enough has been crowded up to permit its penetration and as the bullet slides or slides on the skin before entering it will cause a brush burn on the side of the wound from which it came. The longer the brush burn the shallower the penetration of the bullet.

Until their force is expended steel-jacketed and cupronickel lead-filled bullets travel straight ahead and are not deflected when they strike bone equally on all sides.

Contact wounds are surrounded by a ring of powder or a burn of the skin due to the exploding gases. Gas wounds are contact wounds, and are gaping extensive ragged-edged wounds into which the exploding gases have entered through the opening made by the bullet and undermined the tissues scorching and tearing them apart. They usually occur where there are large areas of soft tissues overlying bone as in the scalp.

Revolvers in common use 0.38, 0.32, 0.30 and 0.45 calibers dash about 4, 3, 7 and 9 in respect

may be given in full with illustrations.

E. C. ROBINSON, M.D.

Herff, E. P. Elephantiasis Treated by the Kondoleon Operation. *Surg. G. M.* 10: 10, 1901.

and deep fascia from both sides of the affected limb. Then incisions over the points are made in order to prevent scars in these areas. The subcutaneous tissues here being removed by undermining the skin. The thick wax fascia is not removed. In order to prevent painful adhesions the muscle is not broken. The lymphatic material is drained.

It is better not to operate on both sides of the same limb at one operation. If the lower extremity

ovary, the liver and the mediastinum are situations in which they do not occur.

The majority of these tumors, both in the male and female arise from, or bear a direction relationship to the teratomatous new growths.

The case reported was that of a man 50 years of age a patient at the Edinburgh Royal Infirmary. The conclusions drawn with regard to it are as follows:

1. A testicular tumor as the primary source of the growth could be excluded with certainty in this case.

2. The primary tumor was situated behind the liver and probably originated in an abnormally situated primitive germ cell.

3. The latter without fertilization had undergone development producing a teratoma which contained all three layers of the embryo plus trophoblast.

4. The stimulus for the division of the positive germ cell (gamete) was probably found in the abnormal (not ovarian or testicular) tissue by which the gamete was surrounded.

5. The cause of the malignant transformation of the teratomatous formation may be found in the little understood disturbance of balance of internal secretions occurring in adult life and especially in middle life.

(HARRY B. MARRAS, M.D.)

BLOOD AND LYMPH VESSELS

Grégoire, R.: Asystole Due to Arteriovenous Aneurysms and Its Surgical Treatment (L'asystole provoquée par les anévrismes artérioveineux et son traitement chirurgical). *Bull. et mémoires Soc. d'Chir. de Paris* 42: 3, 1930.

Grégoire reports two cases. The first was that of a man 34 years of age who received a gunshot wound in the upper part of the thorax in 1914. A year later effort dyspnea and heart murmur were noted. The heart was hypertrophied and hypodynamic. By tracing the course of the murmur a subchambrer arteriovenous aneurysm was discovered. Following operation on the aneurysm the asystolic phenomena disappeared.

The second case was that of a man who was wounded by a shrapnel bullet in 1914 and developed an arteriovenous aneurysm at the apex of Scarpa's triangle on the left side. For a year he had had symptoms of cardiac failure and was confined to bed, the asystole being complete and associated with cyanosis, edema of the lower limbs, enlargement of the liver dyspnea, etc. After operation on the aneurysm the asystole disappeared in twenty-four hours.

(J. H. HARRIS, M.D.)

Arteriovenous aneurysms cause an increase in pressure above the aneurysm and hypertrophy of

only method of curing the asystole.

(W. A. BROWN)

Winslow, N.: Extracranial Aneurysm of the Internal Carotid Artery. *Ann. Surg.* 92: 439, 1930.

Of the carotid arteries the common carotid is most frequently the site of aneurysms. According to Winslow the interest in this affection lies not only

in the disease or there may be a follicle or a distinct tumor behind the angle of the jaw and in front of and below the ear. In the latter event palpation is

size of the growth

of the needle may be plugged by a clot, but the withdrawal of pure blood is positive proof of the presence of an aneurism. Tapping is not recommended, however, unless a prompt operation can be done if a rupture occurs in the path of the needle. Aneurism of the internal carotid rarely points in the neck.

—*Continuation of the aneurism*

distal to a branch, the branch also must be occluded. After ligation the prognosis as regards operative recovery and permanent cure is fair.

The author gives a list of cases reported in the literature, a table of nineteen cases observed by American surgeons, thirteen of which were operated upon, and a full report of a recent case of his own.

E. C. ROBERTSON, M.D.

La Roque, G. P.: A Wound of the Femoral Artery and Vein. *Ann Surg* 92, 1901, 705.

This is the author's second case. The first patient,

complete excision of the injured segments, slightly more than an inch of each vessel. The result is perfect, there being no evidence of ischaemia of the limb, no impairment of function of the lower extremity, and except for the absence of pulsation of the popliteal artery and veins of the ankle and foot

—*not the removal of the aneurism*

F. C. ROBERTSON, M.D.

Herff, E. P.: Elephantiasis Treated by the Kondoleon Operation. *Surg G and Obs* 9, 1901, 753.

breaking the fascial walls lying between the muscles and the subcutaneous tissues and removing wide wedges of skin, fat and deep fascia from both sides of the affected limb. Skin incisions over the joints are avoided in order to prevent scars in these areas, the subcutaneous tissues here being removed by undermining the skin. The thick waxy fascia is not sutured. In order to prevent painful adhesions the muscle is not broken. The lymphatic material is drained.

It is better not to operate on both sides of the same limb at one operation. In the lower extremity

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WALTER C. BURKET, M.D.

SURGICAL DIAGNOSIS, PATHOLOGY AND THERAPEUTICS

Vaughan, E. M.: Bullet Wounds. Their Interpretation. *J Am Med Ass* 9, 1, 1901, 80.

—*Continuation of the article*

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Until their force is expended, steel-jacketed and cupronickel lead-filled bullets travel straight ahead and are not deflected when they strike bone equally on all sides.

Contact wounds are surrounded by a ring of powder or a burn of the skin due to the exploding gases. Gas wounds are contact wounds and are gaping, extensive ragged-edged wounds into which the exploding gases have entered through the opening made by the bullet and undermined the tissues, scorching and tearing them apart. They usually occur where there are large areas of soft tissues overlying bone, as in the scalp.

Revolvers in common use .25, .3, .38 and .45 calibers flash about 4, 5, and 9 in respect

tively. The area of anodage is of a deeper color and smaller diameter the closer the gun is held, and gradually increases in diameter and decreases in density of color up to the point of the greatest flash of the gun.

H. A. MCKAY, M.D.

EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Neuhof H. and Ziegler J. M.: Experimental Reconstruction of the Oesophagus by Granulation Tubes. *Surg Gynec & Obst* 19 2 300 707

Oesophagoplasty for carcinoma of the oesophagus

is complete

The author's plan consists of a two-stage opera-

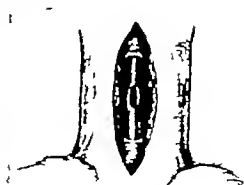


Fig. 2. End of second stage of operation. A portion of the oesophagus has been resected and replaced by a rubber tube secured into place above and below. The tube bridging the gap lies on a bed of granulation tissue.

granulation tissue. Autopsy on the eighth day showed that the posterior wall of the granulation tube had become covered with newly formed ep-

thelium. The oesophagus differed from the normal in that there were no papillae. It stained more deeply, the nuclei of the cells were round throughout, and active mitosis and polynuclear infiltration were present.

In the second experiment the animal was able to take food by mouth at the end of two weeks, only a small portion returning through the fistula, but regurgitation often occurred a few minutes after the food was swallowed.

Autopsy one month later showed that the defect was occupied by a tube of granulation tissue loosely attached to the surrounding tissues. There was no stenosis of the tube and the epithelial lining was complete. Microscopic examination revealed a mucous membrane similar to the normal. The papillae were well marked and there was a layer of tissue similar to the submucosa of the oesophagus.

The third experimental animal was kept for seven months and fed soft food on account of a stenosis at the site of the tube. This stenosis was not pro-



Fig. 1. End of first stage of operation. Oesophagus isolated from surrounding structures and packed off. At the actual operation, packings completely separate the oesophagus from the trachea, great vessels, and aorta.

one half

Miller, G. H., Bowling, H. H., and Stapp, L. L.:
A Study of Experimental Pyloroplasty. *Surg*
Gynec & Obst 19 2 xxvii 763

opened by an incision begun on the ventral aspect of the duodenum about 3 cm. beyond the pyloric sphincter and the ventral wall of the stomach and extended to a point in the stomach about 4 cm. proximal to the pyloric ring. From this point two curved incisions were made almost to the greater

away, firmly fixed in its new location by a line of continuous sutures carefully placed so as to secure complete hemostasis and edge-to-edge approximation without inversion. The incisions made in outlining the flap were then closed by lines of sutures extending to either side from the base of the flap.

In four of the dogs the incisions were made

peritonitis. In all, it appeared that the pylorus had functioned normally.

Other operations were performed to test the action

renal pelvis, the ureters, the bladder, and the

(1) when an incision was made through the serous and muscular coats down to the submucosa, and (2) when an incision was made from inside the lumen through the mucosa and submucosa, the muscle being left intact. Each of the tests was repeated three times. The conclusions arrived at by the authors on the basis of these experiments and tests were as follows:

1. A plastic flap operation or the Heineke-Mikulicz operation gives temporarily a true enlarge-

ment of the pylorus if the edges sutured are not turned in.

2. A normal pylorus enlarged by any of the procedures described except the Ramstedt operation tends to return to its normal size. Whether a stenosed pylorus thus operated upon would return to its former stenosed condition or retain a lumen of normal size is still uncertain.

3. A plastic flap operation is unsatisfactory because it requires extensive incisions into the lumen of the canal and because of its tendency to retract and restore the divided pyloric sphincter.

4. Under favorable conditions the Ramstedt operation or so-called "partial pyloroplasty" is the most effective method of enlarging the pylorus. It has the advantage that it is the simplest operation yet devised for this purpose and does not require

not be confined entirely to cases of congenital stenosis but should be more generally applied in the surgery of the pylorus. E. C. ROSSIGNOL, M.D.

LEGAL MEDICINE

Reputation Not Deemed at Stake—Evidence and Questions in *Sponge Case*. *Calder* 11 12 17
Grain (11 12) 203 *Pac R. R.* p. 39

In affirming a judgment for \$6,000 damages for injuries from the alleged negligent leaving of a gauze sponge in the abdominal cavity when an appendectomy was performed, the supreme court of Idaho stated that the defendant insisted on a new trial on account of certain alleged errors and urged consideration of the fact that above and beyond the negligence, the

the work, it is greatly to the credit of the profession that comparatively few mistakes are made. The law requires only that degree of care which is

very
clear
to
the

injury was caused by the accident at

arising out of it but if there was a pre-existing disease he is entitled to recover for all the consequences attributable to the injury in the accident.

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the case was remanded.

questions he had asked the expert witnesses when

The second case was that of an employee who had some disease in form which caused spasms or convulsions of not very frequent occurrence and

ment in argument of questions propounded to the

1

1

1

decision giving due weight to the opinion

J. A. CANTARENO

UNLESS OTHERWISE STATED THE SUPPLY CASE WAS IN
burns he received from falling into the pit and not
from his pre-existing disease J. A. CANTARENO

Liability of Hospital for Inevitability of Nerve in
Administering a Hypodermic. (See also re
Prescription Lathra Hospital Case also (Neb)
85 V R p 230

in the case

The supreme court of Illinois stated in the first
case that an employee is entitled by the Illinois
statute to be compensated for very accidental

1

1

results from an accident independent of pre-existing
disease

He is not entitled to compensation for a condition
resulting from a pre-existing disease and not from
an injury suffered in the course of employment and

disease

The plaintiff was a young man in robust health
who was treated for berms. About an hour before
the operation one of the hospital nurses inserted a

hypodermic needle at a point near the elbow of his right arm and administered an injection preliminary to the anesthetic to follow. The plaintiff then experienced a severe pain which extended down into his hand and fingers. On regaining consciousness after the operation he complained of pain in his hand and elbow and from that time onward his hand was never entirely free from pain and discomfort and both his hand and arm became impaired and deficient in strength. A physician who made an examination of the injured member and inquired thoroughly into the history of the case traced the injury back to the hypodermic given at the hospital.

The court stated that, taking into consideration the health and strength of the plaintiff and the fact that his deficiency or weakness dated solely from the injection of the hypodermic, it was plainly apparent that the administration of the hypodermic injection by the nurse was responsible for the injury.

J. A. CASTROVERO

Overlapping of Bones Indicative of Negligence.
Poly vs. Erd (77) 8 V. 3 sup p. 413

The plaintiff was under the defendant's care in a hospital for seven weeks for treatment of a fracture of the leg. The defendant contended that at the

expiration of that time there was no union of the bones. There was evidence that it was an exception to have a case go seven weeks without knitting.

The defendant offered no explanation of this unusual result. On the other hand the plaintiff testified that the defendant told him from time to time that the bones were uniting and that the leg was progressing satisfactorily. From the evidence of the plaintiff and his wife and one of the hospital nurses it appeared that there was an unusual protuberance on the leg when the plaintiff left the hospital. When he returned about a month later it was admitted that there was an overlapping of the bones, and this condition continued until the second operation, which gave a satisfactory result. There was no evidence of contributory negligence except that the defendant testified that the plaintiff left the hospital prematurely and contrary to his orders. This was denied by the plaintiff who stated that the defendant told him he might go home and should return in about a month.

The court

held in a normal condition

J. A. CASTROVERO

GYNECOLOGY

UTERUS

Heitz, J.: Hypertension and Uterine Fibromat (Hypertension et Fibromes utérins) Bull Acad de Med Par 1922, LXV, 422

The frequency of hypertension in women with uterine fibromatosis is as follows:

— pressure tested on several

lected

Blasich, R.: The Operability of Uterine Cancer (Zur Operabilität des Uterinadenoms) Zentralbl Gynäk 1922, XLV, 373

should be not be a more

isopericardic in ...
— inserted so the surrounding tissues ...
— root of the cases
The
one
yes to
through (?)

become elevated in temporarily or permanently. Sometimes this lesion will be manifested only after one or several years. Therefore regular and prolonged supervision of all such cases is of importance. By the avoidance of fatigue by a suitable diet and by other physical measures and in some cases, by small monthly venesections, the renal, cerebral, and cardiac complications which so frequently develop in permanent arterial hypertension will be retarded and the period of toleration prolonged. W. A. Bach, M.D.

Pastor M.: A Case of Fibromyosarcoma Uteri Retained a Dead Fetus for Several Months (Un caso de fero fibromiosarcoma con retención del feto muerto meses de un feto muerto en útero) Folia Valencina, 9, 116, 699

The patient was a multipara with metrorrhagia and what appeared to be a large uterine fibrosarcoma. Further examinations suggested a pregnancy which had been interrupted about the third month, a diagnosis substantiated by the elimination of fragments of bone through the vagina.

A subtotal hysterectomy was done. When the

ADnexAL AND PERI-UTERINE CONDITIONS

Reitman, O.: Transverse Wedge Excision of the

The author briefly describes his conservative treatment of inflamed adnexa which he first published in 1908 and reports twenty-two new cases similarly operated on. The method consists essentially in preliminary wedge excision of the fundus of the uterus. Following ligation of the uterine arteries, the wedge excision of the fundus of the uterus is done with hypersection of the wedge and

the following conditions: (1) when the patient is young, (2) when the tubal affection is bilateral, (3) when normally functioning ovarian tissue can be conserved, (4) when the changes are in the fundus of the uterus, and (5) when the changes in

the adnexa are so marked that it appears justifiable in order to simplify the technique to extirpate the adnexa according to the principles of Faure, i.e. from the middle line of the pelvis outward and from below upward. DUBOIS (2)

Bodin, F.: Ectopic Pregnancy Followed by Tubal Abortion: Expulsion of the Fetal Skeleton Through the Urethra (Gestación ectópica seguida de aborto túbico: expulsión por la uretra del esqueleto fetal) Arch. d. gynec. obst. pediat. 9 2, 1888 65

The patient was a woman aged 63 years. Her history indicated an extra uterine pregnancy followed by tubal abortion occurring at about her thirtieth

condition was hypogastric section and incision of the bladder. According to the history of the case as furnished by the patient a family physician numerous

The fetus weighed 2,360 gm. It showed several deformities, chief of which was failure of development of the neck. The specimen removed (placenta and sac) weighed 850 gm. Anatomical examination demonstrated that the condition was a tubo-ab-

external hemorrhage increased weight in the lower abdomen, foetal movements perceived by the mother in a more superficial situation than the normal and provoking pain and false labor pains.

According to Suthar's statistics the maternal mortality in advanced cases of extra uterine pregnancy up to 1886 was 33 per cent. from 1887 to 1890, 40 per cent. from 1891 to 1895, 27 per cent. and from 1896 to 1902, 17 per cent. The recent decrease is attributed to improvement in obstetrical technique and the restriction of operative measures to laparotomy since the time of Lawson Tait. The maternal mortality of marsupialisation was formerly 45 per cent, the principal causes being infection, hemorrhage and intestinal fistula. When the placenta was removed the mortality fell to 15 per cent. In the past ten years it has been 25 per cent. with direct elimination of the placenta, 10.5 per cent. and with indirect elimination of the placenta, 5 per cent. W. A. DUNSTON

EXTERNAL ORNITHALIA

Cherry T. H.: Secondary Perineal Repair: Description of a Simple Technique. Surg. Gynec. & Obst. 92, 1901 803

In normal delivery the posterior segment of the pelvic outlet is distended and thinned by the presenting part but as a rule this leads to no serious damage. When there is disproportion and interference in delivery, the

muscles and the triangular ligament become stretched, thinned out and separated from their insertion, with resulting general relaxation of the entire pelvic outlet leading to rectocele, cystocele

Zarate, F.: Notes on

Cer.
Fos.
La.
Ch.
oc.
falso trabajo de parto, con madre bajo nroa)
Seminario med. 9, 1887 453

In the second month of pregnancy the patient

had no previous history of false labor pains. A median laparotomy was therefore done. The

wounds were sutured and drained

muscles are then brought together with interrupted No. 3 chromic gut sutures. After the excision of a Y-shaped portion of the excise of vaginal mucous membrane the edges are approximated by a continuous subcutaneous suture until the cutaneous junction is reached. There then remains a space

a urinary abscess and a urethral stricture is present. In such cases it is necessary to destroy the abscess cavity, to perform a urethrotomy and to keep the tract dilated. The second group of cases includes those with a fistula into a urinary abscess and gonorrheal complications without urethral stricture.

MISCELLANEOUS

Fordike R.: Sterility. *Practitioner* 922, 1910 45

In this discussion the author considers only primary sterility and its treatment insofar as it concerns the family physician.

A complete physical examination of both the man and the woman is of course the first essential. Microscopic examination of the ejaculate of the male is also necessary.

The author calls attention to what he terms

proposed for it

In pronounced cases there is a characteristic

logic lesion found

Fonseca: Urethro-Peetineal Urinary Fistulae (Comunicaciones uretro-petinales urinarias). *J. d'ural med. e chir.* 6 1909, 349

The author divides his cases into three groups. The first includes those in which a fistula leads into

that done in the treatment of varicocele in the male. Martin (2)

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

De Wesselow O. L. V.: Some Chemical Observations on the Toxemias of Pregnancy. *J. Obst. & Gynec. Brit. Emp.* 1922, LVII, 1.

The author's report is not concerned with the etiology of eclampsia and the allied toxemias of pregnancy but deals with the results of an attempt to estimate the value of chemical methods of investigating these conditions.

The available methods of estimating renal and hepatic function are discussed at length. Two distinct types of defects of renal function are known, one characterized by inability on the part of the kidney to excrete substances for which there is a renal threshold and the other characterized by

— — — — —

less at sea for we have no very accurate chemical method of estimating the degree of hepatic failure. The author has endeavored to show that by a chemical examination of the blood plasma and urine together with blood pressure readings we can obtain very definite and helpful data which will aid materially in the treatment and prognosis of the toxemias of pregnancy.

The material for this study was obtained from twenty-nine cases of normal pregnancy in St. Thomas Hospital, London. The following conclusions are drawn:

1. There is no definite evidence that in the toxemias of pregnancy we can detect chemically the presence of a liver lesion *per se*.
2. There is no chemical evidence of the existence of a hepatic toxemia of pregnancy as distinct and separate from a nephritic toxemia of pregnancy.
3. Chemical examination of the blood is of very definite value in indicating what form of treatment is indicated and to what extent the life of the mother is endangered.
4. Lacking methods of estimating hepatic function, we must be guided by the known renal efficiency tests in the management of the toxemias of pregnancy.

HARRY B. M. MORRIS, M.D.

Paddock, C. E.: Hyperemesis Gravidarum. *Surg. Gynec. & Obst.*, 1922, XLIV, 633.

The late vomiting of pregnancy is one of the multiple manifestations of toxemia, and may call

for convenience into three stages:

1. The nausea with slight vomiting of mucus which comes on soon after the first missed menstrual period.

2. The stage of constant nausea in which all foods are rejected, the vomitus contains bile and blood, the urine becomes scanty and contains albumin, casts, diacetic acid, and acetone and the skin becomes dry and hot though there is little if any rise in the temperature.

3. The marked acidosis in which the vomiting may be decreased and there is more or less delirium, the urine is scanty and shows an increase in casts, blood, and albumin and there is a slight rise in temperature. Frequently all vomiting ceases, and the patient seems to be recovering, but the damage already done the liver and kidneys is so great that death results.

Hyperemesis gravidarum in early pregnancy is rare but vomiting in early pregnancy is not unusual and the two conditions must be differentiated. The author — — —

author reports the histories and treatment of three cases by duodenal tube feeding. To Paddock's knowledge this is the first record of such treatment.

Paddock, C. E.: The Treatment of Hyperemesis Gravidarum by the Duodenal Tube. *J. Am. M. Ass.* 1922, LXVIII, 61.

The condition of the patient when she entered the hospital was — — —

anastomosis

On March 5 the duodenal tube was passed into the stomach. The patient was restless during the night, gagging most of the time. When the tube

was in the duodenum she was fed for one hour by the slow drip a 5 per cent glucose and 2 per cent aqueous solution of sodium bicarbonate. This formula was used through the day at three-hour intervals.

With the entrance of the tube into the duodenum, the patient was relieved almost immediately, the eructation of gas becoming less frequent and the distress less painful.

On March 7 feeding at three-hour intervals was continued through the day with a formula con-

pulse 110, and the respiration 20.

On March 13 the tube was removed and the patient fed by mouth. On the removal of the tube, recovery continued easily and rapidly.

The principal indication for the use of the duodenal tube is the loss of weight due to starvation or dehydration of the tissues, in other words, the depleted condition that arises from the excessive vomiting.

EDWARD L. CORVILL, M.D.

Novak, E.: Hydatidiform Mole and Chorio-Epithelioma. A Clinical and Pathologic Study. *J Am Med Ass* 19 2, LXVIII, 1771.

supposed.

The histologic features of mole not shown.

the microscopic picture alone and curettage for

epithelioma

In the great majority of cases thorough evacuation of the uterus will cure hydatidiform mole. If bleeding persists it is best to perform a partial hysterectomy.

H. W. FINE, M.D.

Black, H. A.: Chorionepithelioma. *Colorado Med J* 9 2, 115.

The etiology of chorionepithelioma is unknown but the author believes it is associated with a deficiency in the resistance of the tissues to proliferation of the embryonic elements. Pregnancy is not an essential prerequisite since the condition may occur in the male. There is no particular age limit but in the female it develops more frequently near the

primary febrile reaction not present

LABOR AND ITS COMPLICATIONS

Le Roy des Barres: Right Pelvic Nerve: Rupture of the Vagina, Cervix, and Lower Portion of the Uterus. *French Med J* 1922, LXVIII, 1771.

de Robt. Par 1922, LXVIII, 455

The case reported was that of a woman of 35 years who entered the hospital with a history of labor pains for three days and prolonged manipulation

infected. The patient's general condition was very poor. There was no doubt that the lower part of the

the vulva, vagina, and hymen occurs early

The rupture of the uterus, about four finger-breadths in length and beginning at the vesico-uterine cul-de-sac was found in the anterior median line. The manoeuvre as planned succeeded and the uterus was then removed by a subtotal hysterectomy with care to close the cervix securely. After a stormy post-

De Lee, J. B.: The Newer Methods of Cesarean Section. *Shields M J* 1932 xii, 341

The newer methods of cesarean section are the extraperitoneal method of Latake and the intra-peritoneal low cervical incision. Many surgeons use the latter because its technique is easier. The author

section, or pubotomy and may give a real test of labor

R. E. CAMPBELL, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY AND URETER

Keyser, L. D., and Paulsen, G. S.: The Extension of Hypernephroma by Way of the Renal Vein. *J. Urol.* 52, 1 463

invaded (2) the manner of its invasion, (3) the

fibrous bands which gave it a somewhat nodular appearance. A lapet of tumor tissue extended into the renal pelvis. On microscopic section the

showed some interesting phases of the extension

morphology with that of the tumor tissue seen elsewhere. A number of sections through this block showed that the endothelial wall of the vessel remained undisturbed and uninvaded by the tumor growth

the thin wall infiltrated at various points with lymphocytes although no definite hypernephroma cells were found outside the lumen proper under

vein's wall

the lymphatics is much less common

Metastases from hypernephroma may affect any organ. The very multiplicity of tumors involved secondarily suggests that the blood stream is usually the path of distribution. Metastases may be found when the renal tumor is so small that it cannot be palpated clinically and microscopic sections of superficial tumors may be the first to direct attention to the presence of the primary renal growth. Exten-

pressure of the arterial current

In brief these studies seem to show that as a rule

blood stream

Peck, R. Carcinoma of the Kidney in Chickadee (*Neotoma irrorata* in Kauder's) *Arch. f. exp. Med.* 9 2, 1 6

An 2 year-old girl had a tumor of the left kidney weighing 1400 gm. Nephrectomy (Rhm) was performed successfully. The child's general health improved rapidly and she gained 7 kgm. in weight

in two months. The tumor was examined in the Storrck Institute. It had its origin at the inferior pole of the kidney and was in general well encapsulated, having broken through into the pelvis of the kidney at only one spot about the size of a lentil.

Microscopic examination showed that for the most part, the growth was of tubular structure.

capsule

The diagnosis was tubular adenocarcinoma arising from the excretory portion of the fetal kidney. The lipoid was regarded as a product of decomposition of the protoplasm of the renal epithelium.

GRATZKY (Z)

Urbie O. L. A New Method of Kidney Fixation
(Nuevo procedimiento para la fijación del riñón)
Rev de med y ciruj de la Habana 922, 1930, 331

The method of fixing the kidney described by Urbie is a capsular fixation method in which the dis-

into the sheath formed in the kidney and fixed in position with a few sutures.

The author believes that this method is better than the usual capsular fixation as in the latter extensive resection is sometimes necessary and may lead to gangrene. W. A. BARRY

BLADDER, URETHRA, AND PENIS

Cristol, V. Abnormal Opening of the Rectum into the Bladder in the Infant (L'abouchement anormal du rectum dans le cœle chez le nouveau-né)
J. d'anal. méd. et chir. 9, 1930, 241

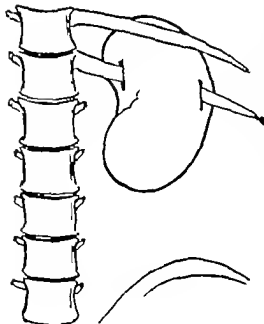
Toward the end of embryonic development the terminal segment of the intestine and the infra-fortal portion of the allantois which later becomes the bladder form a single cavity, the internal cloaca, which is separated from the exterior by the cloacal membrane. Later the internal cloaca is divided by a septum into two parts, the anterior of which becomes the urogenital sinus and the posterior the anorectal canal. The cloacal membrane forms an anterior urogenital and a posterior anal membrane. When absorbed, the anterior urogenital membrane becomes

imperforate anus results but the rectum occupies its proper position. If the septum between the

between the rectum and the allantoic vesicle it is particularly serious, but as a rule it is low down in the region of the trigonum. The rectal segment occupies various positions in relation to the bladder but in most cases its extremity is extraperitoneal. Usually imperforate anus and a rectovesical or vaginal fistula which does not empty the rectal canal sufficiently are associated conditions and death soon results from stercoræmia and pyelitis unless an outlet is formed for the collection of fecal material by surgical measures.

Cristol recommends the perineal approach and slight anesthesia so that the rectum can be seen through the trousers when the infant cries. He carefully frees the rectum without injury to the perito-

neum with four stitches. If the ampulla of the rectum is too deep



rapidly cleared up under treatment. Lues appeared to be the predominant etiological factor in all of the cases.

Herman Diner, M.D.

GENITAL ORGANS

Vanden Berg, H. J., and Butler, W. J.: Peritonitis Complicating Prostatectomy. *J. Surg. 19*
1917 648

As peritonitis is a very rare complication of

by the bladder contents. The danger is greater in the two-stage operation.

The preliminary cystostomy includes incision and distension of the bladder with some sterile solution which later is drained off by a retention

!
Walsham does a 2-stage cystostomy first exposing the bladder and placing guy sutures, and after four to seven days opening and draining the bladder.
Louis Newhall, M.D.

SURGERY OF THE EYE AND EAR

EYE

Lane, L. A.: A Study of Tumors of the Lachrymal Gland, with a Report of a Mixed Tumor
Am. J. Ophth. 1922 \ 425

New-growths of the lachrymal gland are rare. In addition to new-growth the gland may be involved by cysts or dystrophia and Mikulicz disease. Mikulicz describes the disease given his name as follows: "A disease beginning in the lachrymal glands and extending to the salivary of slow growth, without any evidence of bacterial findings, non-inflammatory and confined entirely to the glands of the head." There are four types of this disease.

Type 1: Symmetrical enlargement of the lachrymal gland and one or more pairs of the salivary glands. There are no blood changes in this type nor is there any evidence of lymphatic disturbance.

Type 2: Symmetrical enlargement the same as that of Type 1. The blood shows a reduction in hemoglobin but is otherwise normal. There is some lymphatic enlargement. The picture is that of a pseudoleukemia.

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Nesbitt W L: Retinitis of Hypertension Plus Nephritis *J Am Med As* 1932;LXXVI: 688

Though the ophthalmoscopic picture of retinitis in the various types and stages of cardiovascular renal disease is familiar to oculists and internists

plaques in the retina may produce pictures rather closely simulating true primary arteriosclerosis and arteriosclerotic retinitis

visible renal insufficiency. Each type of retinitis should therefore be interpreted on the basis of the various ophthalmoscopically visible factors rather than as an entity.

In spite of a possible local mechanism regulating blood pressure sufficiently long continued general

generalized vascular disease

H P WAGNER, MD

Wuendenmann H V: Retinitis Proliferans *Am J Oph* 93 v 337

mainly to an increase in the amount and extent of the process

more definite contraction of the arteries and the appearance of small exudative or degenerative

SURGERY OF THE NOSE THROAT AND MOUTH

NOSE

Lemere, H. B.: A New Operative Technique for the Operative and Postoperative Treatment of Maxillary Sinus Diseases. *Laryngoscope* 19 1911, 363

Lemere describes a modification of the classical Caldwell-Luc operation upon the maxillary antrum which differs from the original procedure largely in the after-treatment. An incision is made

hand placed externally on the nasal bone, will elevate the fragment into place. In cases of simple fracture this often occurs with a snap. In comminuted fracture the tissues must be gradually

and 1911 up

Beginning six hours after the operation the antral mucus, which has been preserved, is subjected to repeated washings. The rubber tube is withdrawn and the patient irrigates the antrum through the opening in the mouth. When this opening closes after two weeks the irrigations are continued through the nasal opening until the return flow is continuously clear. (L. J. Novak, Jr. M.D.)

Goldthwaite, R. H.: Plastic Repair of Nasal Displacement and Deformity. *U.S. Surgeon* 93 1911, 4

The author reports a case of repair of a nasal displacement and deformity in a patient whose nose was crushed laterally in a boxing contest five years previously and not treated. Nasal breathing had been impossible on either side since the injury. The tip of the nose was displaced 1 in. toward the right. The septum was crumpled so that complete examination of the nasal spaces was impossible.

Under local anesthesia the nasal septum was

nasal bones so that they can be set in the desired position and will not be displaced by any natural

New, G. B.: The Syndrome of Malignant Tumors of the Nasopharynx. A Report of Seventy Nine Cases. *J. Am. M. Ass.* 1911, 100

Seventy nine patients with malignant tumors of

and there is a small block of tissue

nasopharyngeal tumor even in the absence of nose or throat trouble

The older

rubber tissue drains were inserted into the lateral incisions and both sides of the nose were packed withaseline gauze. The gauze was removed on the following morning. Nasal breathing was begun on the third day. The patient made an uncomplicated recovery.

The author outlines the treatment for recent and old fractures of the nasal bones.

In recent fractures the nose is exposed and a half edged periosteal lever is introduced and held high up against the lateral wall on the depressed side. A firm lifting movement guided by the other

is to be constant or recurrent, extend over the cheek mastoid frontal and temporal regions or be localized in the eye. At times it is particularly troublesome when the patient lies down. Many patients have their teeth removed in the hope

Benedict, W. L.: Riddle of Hypertension Plus Nephritis. *J Am Med Ass* 92: 1674, 1928

Though the ophthalmoscopic picture of retinitis in the various types and stages of cardiovascular renal disease is familiar to oculists and internists,

plaques in the retina may produce pictures rather closely simulating true primary arteriosclerosis and arteriosclerotic retinitis.

(seen as an entity)

In spite of a possible local mechanism regulating blood pressure sufficiently long continued general hypertension in the majority of cases leads to an arteriocapillary fibrosis in the walls of the retinal arteries which is demonstrated ophthalmoscopically as a uniform reduction in the caliber of the arteries, narrowing and accentuation of the arterial reflex stripe, an increase in the caliber of the veins and arteriovenous compression. These changes are due mainly to an increase in the fibrous and elastic

seems to depend directly on the retention of urea or allied nitrogenous products, but usually indicate that a renal break has occurred recently or will soon take place and always strongly suggest that the kidneys have been considerably damaged by the generalized vascular disease.

H. P. WAGNER, M.D.

Waerdestrom, H. V.: Retinitis Proliferans. *Am J Ophth* 191: 327

The author shows two cases to demonstrate the macroscopic pathology in retinitis proliferans. He emphasizes the fact that most cases of this condition are traceable to a direct traumatic or other cause but believes there must be an underlying

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Only thirty-eight patients presented with
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of Jacksonian type or regular Jackson syndrome
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Numerous
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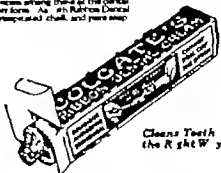
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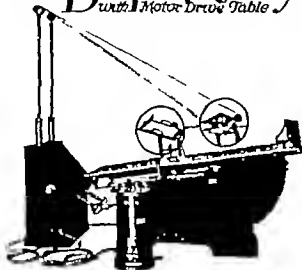
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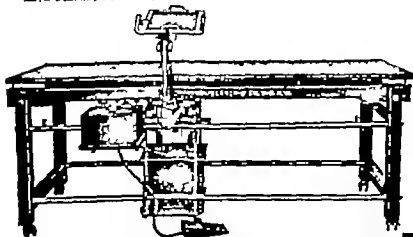
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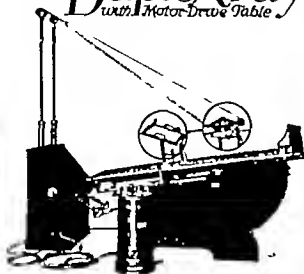
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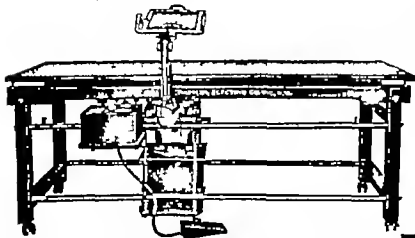
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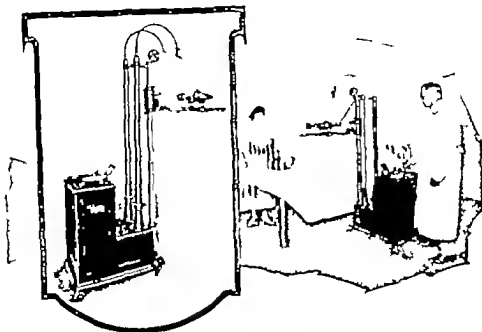
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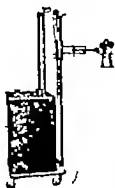
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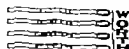
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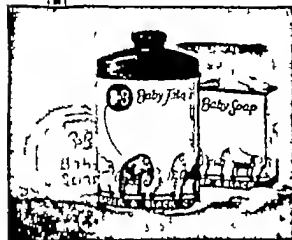
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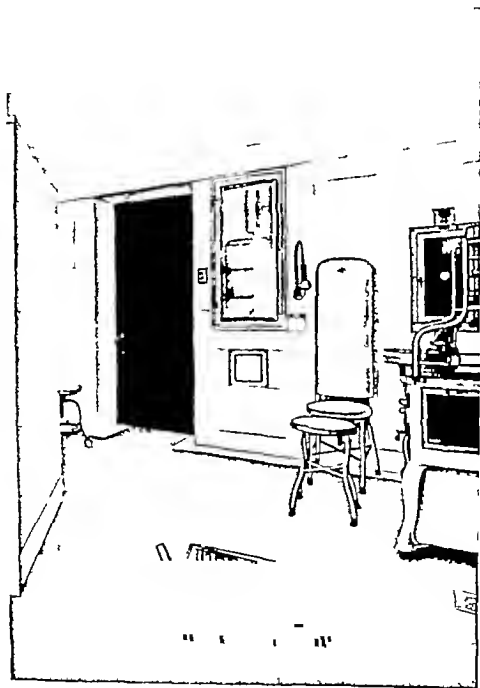
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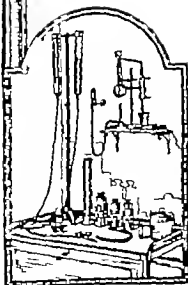
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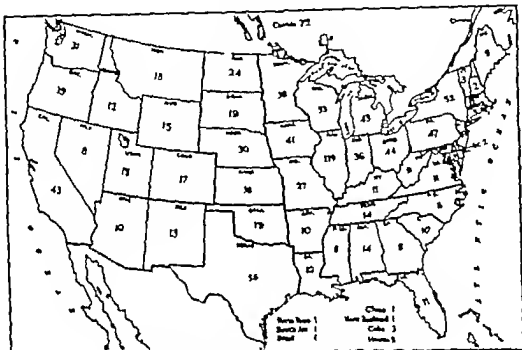
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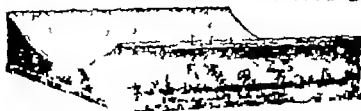
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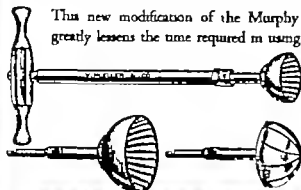
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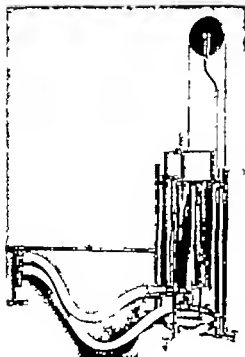
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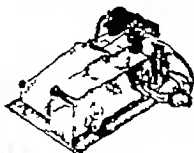
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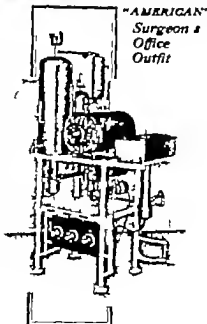
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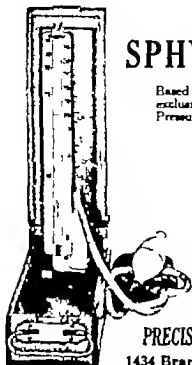
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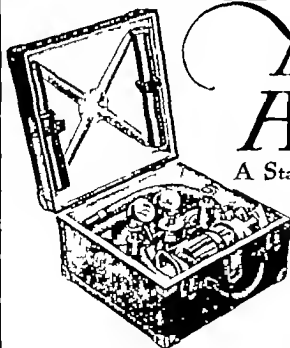


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| 40-Day Chromic Catgut | No. 158 |

SIZES 000 00 0 1 2 3 4

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| | | |
|----------------|----------------|----------|
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| 10-Day Chromic | Boilable Grade | No. 1325 |
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Kalmerid catgut is made also in an extra flexible grade, which is non-boilable and which is described on the following page.

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See Advertisement on Page One

Method of Sterilization

sterility is absolutely assured. Rigid bacteriologic control is maintained.



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THE NON BOILABLE grade of Kalmerid catgut differs from the boilable variety described on the preceding page in that it possesses extreme flexibility—a characteristic sometimes desired by surgeons accustomed to the use of iodized catgut. It is impregnated with potassium-mercuric-iodide, and the sutures exert a local bactericidal action in the tissues.

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Lengths Vary From 12 to 20 Inches

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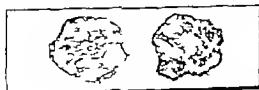
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| Product No. | Approximate Quantity in Each Tube | Standard Size |
|-------------|--------------------------------------|---------------------|
| 330 | Celluloid Lumen Thread 60 Inches | 000, 00, 0 |
| 360 | Horsehair 4 28-In. Sutures | 00 |
| 390 | Plain Silk worm Gut 4 14-In. Sutures | 00, 0, 1 |
| 400 | Black Silk worm Gut 4 14-In. Sutures | 00, 0, 1 |
| 450 | White Twisted Silk 80 In | 000, 00, 0, 1, 2, 3 |
| 460 | Black Twisted Silk 80 In | 000, 0, 2 |
| 480 | White Braided Silk 80 In | 00, 0, 2, 4 |
| 490 | Black Braided Silk 80 In | 00, 1, 4 |

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| Product No. | Approximate Quantity in Each Tube | Standard Size |
|-------------|--------------------------------------|----------------|
| 502 | Plain Catgut 20 In | 00, 0, 1, 2, 3 |
| 512 | 10-Day Chromic Catgut 20 In | 00, 0, 1, 2, 3 |
| 522 | 20-Day Chromic Catgut 20 In | 00, 0, 1, 2, 3 |
| 532 | Horsehair 2 28-In. Sutures | 00 |
| 572 | Plain Silk worm Gut 2 14-In. Sutures | 0 |
| 592 | White Twisted Silk 20 In | 000, 0, 2 |

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Sutures With Needles

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| Product No. | Approximate Quantity in Each Tube | Standard Size |
|-------------|------------------------------------|----------------|
| 604 | Plain Catgut 20 In | 00, 0, 1, 2, 3 |
| 614 | 10-Day Chromic Catgut 20 In | 00, 0, 1, 2, 3 |
| 624 | 20-Day Chromic Catgut 20 In | 00, 0, 1, 2, 3 |
| 654 | Horsehair 2 28-In. Sutures | 00 |
| 674 | Plain Silk worm Gut 14-In. Sutures | 0 |
| 694 | White Twisted Silk 20 In | 000, 0, 2 |

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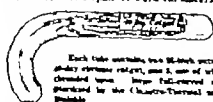
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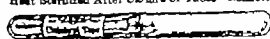
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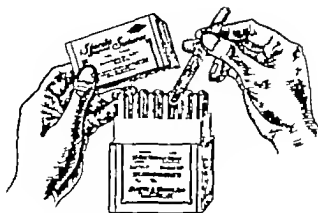
| | | |
|-----|-------|---------------------------------|
| 000 | _____ | In conformity with the long |
| 00 | _____ | recognized need for a |
| 0 | _____ | unified system of sizes, the |
| 1 | _____ | standard scale of catgut sizes |
| 2 | _____ | now embraces all sutures, in- |
| 3 | _____ | cluding kangaroo tendons, silk, |
| 4 | _____ | horsehair, silk worm gut, and |
| 5 | _____ | Pagenstecher's celluloid linen |
| 6 | _____ | thread |

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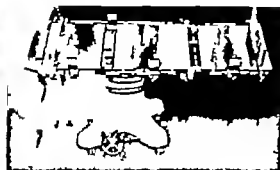
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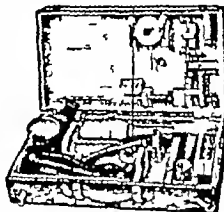
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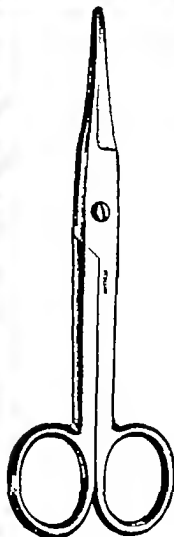
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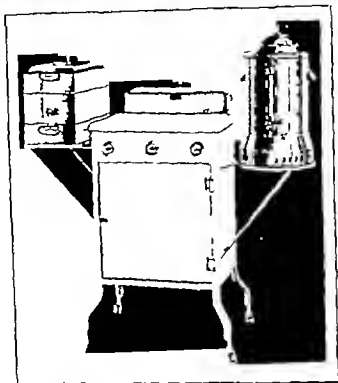
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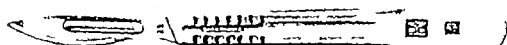
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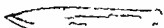
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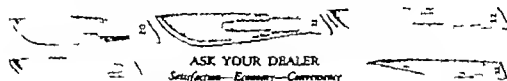
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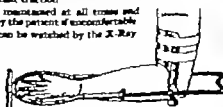
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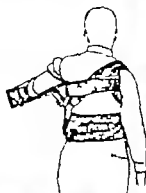
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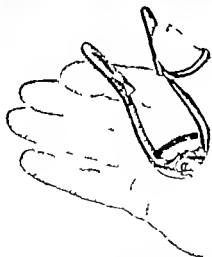
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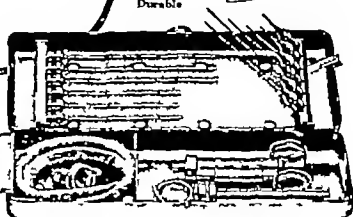
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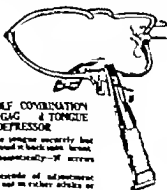
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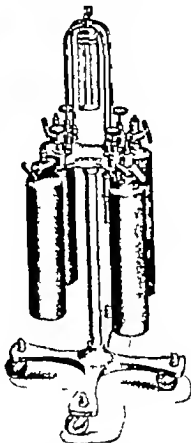
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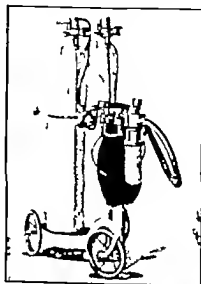
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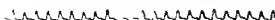
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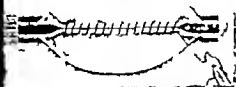
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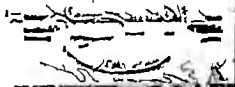
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Fig. A. Granuloma tissue at the umbilicus in the newborn. (Oyon Path No 20463)

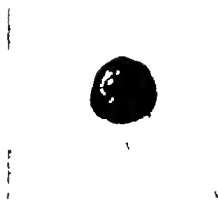


Fig. B. An umbilical polyp. (L.H.I.V. 9750)



Fig. C. Large ulcerated umbilical with reddish tissue in the center. (Dr. Winkler case)



Fig. D. Cross-section of the umbilical cord. (Gy Path No 2000)

PLATE I

Notes on Diseases of the Umbilicus —Thomas S. Collins

SURGERY, GYNECOLOGY AND OBSTETRICS

AN INTERNATIONAL MAGAZINE PUBLISHED MONTHLY

VOLUME XXXI

SEPTEMBER 1922

NUMBER 3

FURTHER NOTES ON DISEASES OF THE UMBILICUS¹

B THOMAS S CULLEN M B BALTIMORE

From the Gynecological Department of The Johns Hopkins Hospital and The Johns Hopkins University

OUTLINE

Tetanus in the Newborn
(maternal Tetanus & the Umbilicus in the Newborn)
Umbilical Polyps of Omphaloenteric Duct Origin

Umbilical Concretions Associated with Inflammation
Changes in the Abdominal Wall
A Tuberculous Abscess Opening at the Umbilicus
Probable Phoma of the Umbilicus
Syphilitic Condyloma of the Umbilicus
Bluish Discoloration of the Umbilicus as a Diagnostic
Sign in Ruptured Extra-uterine Pregnancy
Omphocele Cysts of the Umbilicus
Adenomatosis of the Umbilicus
Varices of the Umbilicus
Moles of the Umbilicus
Papilloma of the Umbilicus
Pseudomucous Cyst of the Umbilicus Secondary to
Pseudomucous Cyst of the Ovary
Carcinoma of the Umbilicus
Primary Squamous-Cell

1
4
5

Ca. of one of the Umbilical Veins
Ammon's Umbilical
Umbilical Hernia at Birth
Emphysema

(continued)

SINCE the appearance of my book on diseases of the umbilicus,² six years ago quite a number of American surgeons and pathologists have been good enough to draw my attention to cases coming under their notice and quite a few have sent me the specimens for study.

During this period I have seen and operated on a goodly number of such cases. In the present paper I shall refer briefly to these cases, but shall not attempt to include the recent literature on the subject. To enter into a full discussion of the various lesions here considered would be a needless repetition inasmuch as nearly all umbilical and urachal diseases were more or less fully analyzed in my book. Where necessary I shall in a footnote refer the reader to the page in the original volume where a full discussion of the given subject may be found.

TETANUS³ IN THE NEWBORN IN CHINA

During the summer of 1916 Dr Jennie M Logan, who had just returned from China,

Thomas S Cullen, Embryology, Anatomy and Diseases of the Embryo, together with Dames of the London Pathological Society, 1918.

Diseases of the Umbilicus, p. 40.

PLATE I

Fig. A For full description see p. 39 Gyn Path
No. 25153
Fig. B For full description see p. 200 Gyn Path
No. 8780
Fig. C For full description see p. 20
Fig. D For full description see p. 7 Gyn Path
No. 25151

Prepared before the Southern Surgical Association, Pittsburgh, Pa., December 1921.

visited Baltimore and we were discussing tetanus in the newborn. Her description of the appalling lack of asphyxia during labor among the poor Chinese women of Hunan Province was so vivid that I asked her if she would not write me a short account of what she had actually witnessed there. Under date of October 11, 1916 Dr Logan wrote from Boston, as follows:

"The usual preparation for lying-in by a poor Chinese woman in Hunan Province consists in getting together a roll of the cheapest paper made of straw, a large old low wash-tub about 4 or 5 inches deep, a small wooden stool 6 inches high to sit on. In the tub two shovelfuls of wood ashes wrapped in the straw paper for the bed, an old pair of scissors, a slop bucket and a string.

The mother sits on the stool leaning against a friend or a washstand, the child is born into the tub which already holds the amniotic fluid and previous discharge, and is caught up by the midwife or a neighbor.

In men's dispensary there are frequent cases of tetanus neonatorum. The person who brings the child generally tells us that the baby won't nurse. One finds the muscles convulsed, the little jaw rigid and the umbilicus either red or angry looking or quite black and foul-smelling. The child is almost invariably about 10 days old.

"Just before the end of May a case came in with the mouth open though the jaws were perfectly rigid and could not be bodged either to open or to close the mouth further. The hands too were not quite closed even during the convulsion but were perfectly stiff.

We have had such cases for a period of 18 years in the dispensary and of late have not tried to help them in any way as it always was hopeless and the attempt and failure did not help our work.

Dr L. M. Miles who soon goes to the gynecological department of the Peking Medical School, and who has been working

with me in the gynecological department for the past year has on several occasions spoken to me of the treatment of the umbilical cord in the part of China in which he has lived, and has drawn attention to the great frequency with which the newborn child develops tetanus. The reason why is clearly shown in

his writing: "The people of Shantung Province of China are for the most part poverty-stricken. Hence they cannot afford even the simplest of layettes for the newborn babies. Cotton cloth for diapers is out of the question because of cost. Consequently they have striven to find the cheapest possible substitute. This consists of a bag of coarse, native woven cotton cloth which fits the baby loosely and encloses it from the navel down.

"As soon as the child is born the cord is tied with any old whisp of string and the baby is placed in this bag, which is then filled with dry dust from the field or street and the bag is then tied around the child's body. Under favorable circumstances the bag may be emptied and fresh dust substituted in a few days. In winter when the ground is frozen the dirt may merely be dried out over the fire and replaced in the bag.

Such a procedure is, as can well be imagined, often followed by tetanus neonatorum. It will be erring on the side of conservatism to say that 50 per cent of the babies thus cared for die within the first 10 days of life."

GRANULATION TISSUE AT THE UMBILICUS IN THE NEWBORN

In these cases the umbilical stump does not heal kindly. A small red mass is found in

On microscopic examination these growths are found to consist of granulation tissue

Diagnosis of the Umbilicus, p. 126

The surface is covered with polymorphonuclear leucocytes. The outer layers are composed of granulation tissue and the central portion may be more or less organized (Fig. 1). Such small masses are totally devoid of epithelium.

Granulation Tissue of the Umbilicus in the Newborn

Case C. W. a colored baby 1 month old at the Harriet Lane Home on December 17, 1930. No abnormality at the umbilicus had been noted at birth. Two weeks before admission the child had had a three-hour crying spell and discharged a considerable amount of blood from the navel, and on examination the mother had noticed a small raspberry-like growth in the umbilical depression (Plate I, V). Since that time there had been a constant yellow discharge from the navel and the mother thought that the protrusion had become larger.

Operation. The small growth was gently lifted up with broad-pointed stomach clips and the base ligated with one plain catgut suture. The growth was then cut away.

Gross. The growth was 1.5 cm. in diameter. The organ was 4 cm. in diameter. The outer end of the omphalomesenteric duct histologically, however, no such similarity was found.

1. Umbilical Polyp Consisting of Granulation Tissue

Surpical No. 46035 G. C. age 1 month was admitted to the Harriet Lane Home on December 1, 1918. He had vomited occasionally since birth.

At birth a polyp due to the persistence of the outer end of the omphalomesenteric duct.

Operation December 9, 1918. With intestinal lip I grasped the lip close to the umbilicus on each side to make the tissues taut. An elliptical



Fig. 1. An umbilical polyp consisting of granulation tissue.

Surpical No. 46035 G. C. Path No. 2157. The squamous epithelium of the umbilicus prevents the usual appearance. Sprung from the umbilicus by a delicate pedicle.

tissue rich in capillaries. Scattered throughout it are many young connective-tissue cells. Very few polymorphonuclear leucocytes are to be noted in the central portion of the polyp.

From the above it is clearly evident that the polyp consisted essentially of granulation tissue, no epithelial elements being present.

The squamous epithelium of the umbilicus showed some polymorphonuclear infiltration near the pedicle of the polyp.

It is unusual to find so firm an umbilical polyp unless it is due to a remnant of the omphalomesenteric duct. Where such is the case little or no inflammation exists. The outer surface is covered by intestinal mucosa and the center contains strands of non-striated muscle.

Clinically this polyp bore a striking resemblance to a polyp of omphalomesenteric origin histologically, however, no such similarity existed.

UMBILICAL POLYPS OF OMPHALOMESENTERIC DUCT ORIGIN

Occasionally when the cord comes away a bright red polyp is noted in the umbilical

Diseases of the Umbilicus p. 20



bowel over the surface of the bowel and along the diverticulum to the umbilicus
For the histological picture of the umbilical polyp see Figure 3

depression. When this does not consist of granulation tissue it is usually the remains of the outer end of the omphalomesenteric duct.

Granulation tissue usually soon dries up under astringent treatment whereas the polyp consisting of embryonic remains persists.

Case C H I 18780 is a notable example of the umbilical polyp originating from the omphalomesenteric duct. In Plate I, B we see the bright

mucous which on histological examination was

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cord came away. In some cases the polyp is the only remnant of the omphalomesenteric duct. In some the vessels of Meckel's diverticulum persist and are adherent to the abdominal wall; occasionally the duct is



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patent and the polyp also exists. Cases of remnants of the omphalomesenteric duct form a most interesting group.

Dr Randolph Winslow's case bore much resemblance to the one here reported.

Dr R M Harbin¹ of Rome, Georgia, in a short but interesting article published in 1917 reported several cases somewhat similar in character.

Umbilical Polyp Associated with a Meckel's Diverticulum

C. H. I. No. 18780. J. A. 1 year old was admitted to the Church Home and Infirmary March 10, 1918. This child had at the navel a bright red mass about 1.5 centimeters in diameter (Plate I, B). This was first noted when the cord came away. It was slightly lobulated and at one point a pedicle could be seen.

Operation. We made an incision around the base of the polyp and brought it out. We got it out.

After the removal of the polyp, the adipose tissue was brought together with fine catgut and the skin with black silk. The child stood the operation well.

April 1. Last night the child's respirations became accelerated, it grew restless and the pulse became rapid. This morning the respirations were 60. After an enema the child had a small stool.



Dr. Charles L. Sumner made out a definite bronchopneumonia in the lower lobes of both lungs and a very unfavorable prognosis was given. The child died at 6 p. m.

At autopsy we found the bowel above the point

In this case the bowel was very small so small that when the stump of Meckel's diverticulum had been turned into it its lumen was considerably narrowed. We noted this carefully at operation but the lumen apparently was still sufficient. Autopsy however showed that the inverted stump had swollen up after operation and almost completely blocked the bowel. In subsequent cases I should be inclined to leave little if any stump to the diverticulum but cut it off almost flush with the lumen of the bowel and close this opening just as one would an ordinary linear incision in the gut, namely with two rows of continuous silk a very narrow margin of the gut being turned in, in view of the fact that the lumen is naturally so small in the young child. If closure be made transverse to long axis of the bowel there will be less narrowing of the lumen.

Meckel's Diverticulum Associated with an Umbilical Tumor (Dr. Randolph Winlow Case)

On April 1, 1918 Dr. Randolph Winlow sent me two pictures of a case which had come under his observation. In this small

child the umbilical region was represented by

(Plate I. C) a marked prominence of the abdomen was apparent just below the umbilicus. Dr. Winlow said that in this case a Meckel's diverticulum was adherent to the indurated umbilicus. He removed the diverticulum and the umbilicus. In all probability the reddish area in the center of the umbilical depression was a remnant of the outer end of the omphalomesenteric duct.

MECKEL'S DIVERTICULUM

In my book on *Diseases of the Umbilicus* I did not attempt to discuss abnormalities or diseases of Meckel's diverticulum with any degree of fulness but confined my attention in the main to a consideration of those abnormalities of the diverticulum that were closely associated with lesions at the navel. However as Meckel's diverticulum is the inner end of the omphalomesenteric duct which in early embryonic life opens at the umbilicus it is due some consideration.

Gastric Mucosa in the Tip of Meckel's Diverticulum

Emil Goetsch,¹ in 1919, reported the case of a man 19 years of age who had intestinal obstruction due to a Meckel's diverticulum which was adherent to the abdominal wall and to the omentum. The patient made a good recovery. Goetsch found the proximal end of the diverticulum lined with intestinal

examination proved to be gastric mucosa. The case was most carefully studied from every standpoint and was well illustrated. Goetsch's paper should be read by everyone interested in the subject. Accompanying the article is a complete bibliography.

In 4 cases of P. mucosa in the Tip of Meckel's Diverticulum

Elsewhere I referred briefly to a case reported by Bliz in which an accessory

¹Emil Goetsch. The occurrence of gastric mucosa in Meckel's diverticulum producing intestinal obstruction. J. Surg., 1919, 26, 100. (Comp. Bull. 1919, 151.)
Transactions of the Otolaryngology, p. 63.

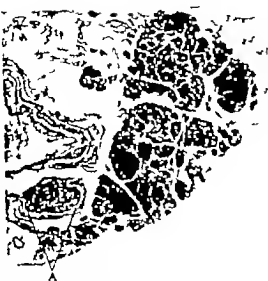


Fig 5. An accessory pancreas in the tip of Meckel's diverticulum.

other dark areas consist of pancreatic tissue.

pancreas was found in the tip of Meckel's diverticulum. In the literature accompanying Gostsch's article are references to quite a number of similar cases.

On April 1, 1920 Dr Douglas Symmers, director of laboratories Bellevue and Allied Hospitals, sent me a section from the tip of Meckel's diverticulum. This contained pancreatic tissue (Fig 5). Dr Symmers letter is as follows: "I am sending to you under separate cover a section of an accessory pancreas removed from the tip of a Meckel's diverticulum of the small intestine, lying about 30 centimeters above the ileocecal valve. The diverticulum measured about 6 centimeters in length. The accessory pancreas lay at the extreme free end and was about the size of one's little finger nail. On section it presented the typical naked-eye appearance of pancreatic tissue and on microscopic examination you will observe that in addition to ducts and acini there are several islands of Langerhans. There are also

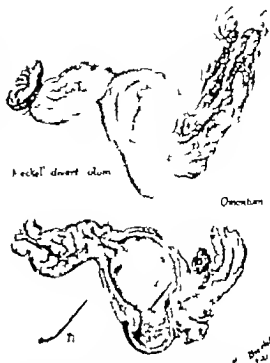


Fig 6. Meckel's diverticulum with a pin embedded in its wall and with the omentum densely adherent to the tip of the diverticulum.

It is as near the free point of the pin that the omentum had become so adherent.

several small nests of ganglion cells in the interstitial tissues of the gut.

Meckel's Diverticulum Contains an Ordinary Pin with its Head Buried in the Wall of the Diverticulum Near its Tip the Point of the Pin Lying Free in the Lumen.

C H I No 27137. Frank C. age 22 was sent to the Church Home and Infirmary by his physician Dr A H A Mayer on November 5, 1921. On November 4 this patient had a temperature of 103. On the afternoon of the next day it was 104 but by evening it had dropped to 102.

His leucocyte count was 50,000. He had definite pain beneath the costal margin on the right. A ruptured duodenal ulcer or an acute gall bladder was at once suspected. The patient also had a definite friction rub over the lower right chest.

He was taken once removed to the operating room

and right rectus incision was made. The liver extended down as far as the umbilicus, the gall bladder was normal and the duodenum showed no change.

The appendix was drawn up and removed through the right rectus incision. It was much enlarged, injected and presented the characteristic picture of an acute inflammation.

through continuous mattress suture of cul-de-sac and then with a continuous black silk suture. Great care was taken not to narrow the lumen of the bowel.

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surely take care of itself.

After operation the temperature still remained high, and from time to time the abdomen would become markedly distended. There was also a good deal of fecal vomiting. The stomach was washed out every few hours and frequent enemas were

In future after removing the diverticulum, if there is any appreciable narrowing of the bowel I shall make a lateral anastomosis throwing the area of bowel with the stump of the diverticulum out of circuit.

Figure 6 shows a pin embedded in the wall of the diverticulum, also the densely adherent omentum.

The Association of Malignant Myomata with Meckel's Diverticulum

On April 15, 1919, Dr. Douglas Symmers, director of laboratories of the Bellevue and

Allied Hospitals, sent me slides from a tumor removed from a man 22 years old. This tumor had given rise to no symptoms and was accidentally discovered by Dr. Sweeney during an operation for hernia. The tumor was attached to the small intestine about 30 centimeters from the ileocecal valve. Symmers said that the naked-eye appearances were those of a malignant tumor springing from the base of what appeared to be a Meckel's diverticulum.

Histologically it suggested a myoma of the uterus undergoing sarcomatous transformation.

Symmers reported this case in the summer of 1919.¹

He says: "For purposes of description the specimen is divisible into two parts—an upper,

of the intestine was a large pale firm, whitish

smoothen

diverticulum. He then cites the case observed by Kaufmann.

Symmers' conclusions are so instructive

¹Douglas Symmers: The association of malignant myomata with Meckel's diverticulum. *Ann. Surg.* 1919, August 183.

that I quote them in detail from the *Annals of Surgery*

1 Subserous occasionally subserous lei-

diameter

2 Judging from the small number of cases to be found in the literature of malignant myomata of the stomach, intestine and gall bladder and comparing this with the number of subserous or submucous leiomyomata met with in corresponding

countered at operation they should, I think, be removed

3 The majority of malignant myomata of the stomach, intestines and gall bladder thus far reported were found in organs which otherwise

metastases Their degree of malignancy is apparent by in excess of their prototype the malignant myomata developing from smooth muscle tumors of the uterus

UMBILICAL CONCRETIONS ASSOCIATED WITH INFLAMMATORY CHANGES IN THE ABDOMINAL WALL

Many cases of umbilical infection owe their origin to an accumulation of foreign material in the umbilical depression. This causes irritation the walls of the umbilicus swell and the umbilical opening then may appear only be of pin-point size. The clinical manifestations may be as in the following case simulate an intra-abdominal lesion, whereas the process is extra-abdominal and limited to the umbilical area

When an umbilical concretion is the cause of the trouble it is merely necessary to dilate the umbilicus, curette away the concretion remove any granulation tissue that may exist and then treat the umbilical area as one

would any other superficial infection. Umbilical infections form a most instructive group. In most cases concretions are responsible for the condition

An Infection of the Umbilicus

Gyn No 21917 W D age 20 white was admitted to The Johns Hopkins Hospital, January

wound and in August of the same year was present in both the right and left lower abdomen

On August 13, 1915, she had an attack of ap-

in a few days became soft and fluctuant in the center while around the softened area was a ring

1 weeks. A week later the area began to burn and sting and for the next 3 weeks there was a bloody and purulent discharge from the umbilicus

At the end of this time the swelling began to spread, and the umbilical region over an area as large as a saucer was indurated and discharged pus continuously. There was some fever. The pus gradually became thick and greenish. The discharge was of this character when the patient entered the hospital and for several weeks she had had chills and fever

On her admission to the hospital an ulcerated area 5 centimeters in diameter was found at the umbilicus. This presented a crusty reddish-yellow scab-like appearance and entirely obliterated the normal umbilicus. Surrounding this was a zone of induration. The abdomen was everywhere tender especially in the right lower quadrant. The outlet was normal, the cervix small, the uterus larger than normal and in retroposition. The fornices were clear. The white blood count was 8,400 hemoglobin 83 per cent

Operation January 10 1916 Under nitrous oxide anesthesia I dilated the infected umbilicus with a Kelly clamp and a small amount of infected tissue was removed. The wound was dressed twice a day with iodine and on January 23 alcohol sponges were applied. At this time there was no

and a right rectus incision was made. The liver extended down as far as the umbilicus, the gall bladder was normal, and the duodenum showed no change.

The appendix was drawn up and removed through the right rectus incision. It was much enlarged, injected and presented the characteristic picture

Allied Hospitals, sent me slides from a tumor removed from a man, 25 years old. This tumor had given rise to no symptoms and was accidentally discovered by Dr. Sweeny during an operation for hernia. The tumor was attached to the small intestine about 30 centimeters from the ileocecal valve. Symmers said that the naked-eye appearances were those of a malignant tumor springing from the base of what appeared to be a Meckel's diverticulum.

Histologically it suggested a myoma of the uterus undergoing sarcomatous transformation.

Symmers reported this case in the summer of 1919.¹

He says: For purposes of description, the specimen is divisible into two parts—an upper, rounded and elastic to the touch, and a lower solid

care was taken not to narrow the lumen of the bowel. Nevertheless when the opening was closed the lumen at this point was only two-thirds its natural size. I debated for some time whether to do a lateral anastomosis but thought the bowel would surely take care of itself.

After operation the temperature still remained high and from time to time the abdomen would become markedly distended. There was also a good deal of fecal vomiting. The stomach was washed out every few hours and frequent enemas were

instilled of a firm, whitish or cream-colored, irregularly lobulated growth, which completely encircled the base of the pouch-like dilatation by which it was

1
of the intestine was a large pale firm whitish

fistula. The patient is now perfectly well.

In future, after removing the diverticulum, if there is any appreciable narrowing of the bowel I shall make a lateral anastomosis, throwing the area of bowel with the stump of the diverticulum out of circuit.

Figure 6 shows a pin embedded in the wall of the diverticulum also the densely adherent omentum.

The Association of Malignant Myomata with Meckel's Diverticulum

On April 15, 1919, Dr. Douglas Symmers, director of laboratories of the Bellevue and

served by Kaufmann.

Symmers' conclusions are so instructive

(Douglas Symmers: The association of malignant myomata with Meckel's diverticulum. San Francisco August 28, 1919.)

the peritoneal surface at this point perfectly smooth. The appendix was removed and the small bowel carefully examined to see if by chance a Meckel's diverticulum existed.

Cyn Path No 26644 Sections from the outlying



in places rarefied. There are young capillaries in such areas and they are surrounded by small round cells. In other places there are large aggregations of these small round cells in the stroma just beneath the epithelium.

It is quite possible that the red area at the umbilicus was identical with that noted on the forehead just at the junction of the hair. The clinical diagnosis of the area of redness on the forehead was psoriasis.

SYPHILITIC CONDYLOMA OF THE UMBILICUS

Syphilis of the umbilicus is rare. It is divided into two groups.

Syphilis of the umbilicus at or shortly after birth and syphilis of the umbilicus in the adult.

One of the most interesting cases of syphilis of the umbilicus in the adult ever noted was the one observed by Fiaschi of Sydney, Australia. I have described the case in detail elsewhere. In addition to the primary chancre on the prepuce was a chancre at the umbilicus. The photograph of the umbilicus showed several dome-like elevations projecting from the floor of the navel and trickling down the abdomen from the navel was a watery fluid. Spirochetes were obtained from the umbilicus.

In November 1916 I saw an interesting case of syphilitic condyloma of the umbilicus, with Dr A. G. Rytina at the Mercy Hospital, Baltimore. The history as given by Dr Rytina is as follows:

November 16, 1916. I, I, white male steel works, complain of sore around navel. He has been in good health this life. No previous venereal disease. Six to eight years ago on penis a sore on the

in incubation period of which was 9 days. The sore healed in a month under local treatment.

Present condition. About 5 weeks ago the patient noticed a severe itching around the anus.

He also complains of a sore throat and a sore on the inside of the lower lip.

Examination reveals the external genitalia normal, except for the presence of a small elevation on the right lip of meatus and an indurated area on the left side of the penis near the frenum. Both these are — — — — —

glands on both sides are enlarged and painless. Surrounding the anus there is a ring of condylomata which, on microscopic examination, shows many spirochete pallids. A faint macular rash can be seen over the body. The right testis is covered by a mucous patch and a patch is seen on the inner sulcus of lower lip. A cervical adenitis is present also.

Diagnosis of the Umbilicus.

1. A. G. Rytina. 2. Condyloma of the umbilicus. 3. Syphilis.

and nursed her baby for a while. She had some fever occasional night sweat and felt bad.

On February 20, 1910, some swelling of the abdomen was noted and on March 6 an umbilical

abscess

histological examination. Bathing the umbilical cavity was purulent material, beneath which was

fibrous tissue as slender strands

It will be noted that in this case we merely incised the umbilicus and curetted away some inflammatory tissue. The chief thing was the stretching of the constricted umbilical opening so that the discharge could escape.

The subsequent abdominal operation revealed the fact that the inflammatory process had been confined entirely to the abdominal wall, the center of intensity being at the umbilicus itself.

TUBERCULOUS ABSCESS OPENING AT THE UMBILICUS

Elsewhere I have described the subumbilical space¹ and referred to abscesses that may develop in this situation.

section

I have reviewed the literature on tuberculous peritonitis followed by fecal fistula at the umbilicus, but in the accompanying case there was no escape of fecal matter and we were greatly surprised to find tuberculous peritonitis at operation.

We shall naturally find a tuberculous umbilical fecal fistula only in the late stages

centimeters deep. This cavity was packed with

From time to time the patient returned for dilatation of the sinus.

Gyn. No. 35666. The patient was readmitted on

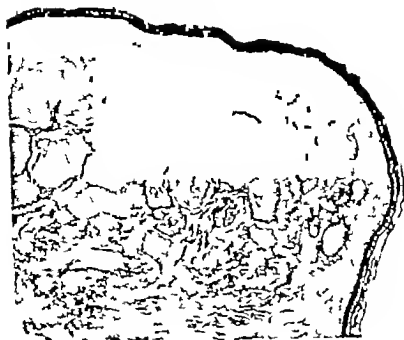
out the abdomen

PROBABLE PRIORITIES OF THE UMBILICUS

This patient had a patch resembling psoriasis on his forehead and a similar area on the umbilicus. There is no reason why the navel

appendicitis, and as he was bothered by the umbilical discharge we removed the umbilical area at the same time.

Mr. C. P. K., age 40, was referred to me by



has a little or no external protrusion

abdomen and shall probably be more likely to encounter it in thin individuals.

Dr. Emil Novak, who is associated with me in our laboratory work, has recently had two cases presenting this sign. These he reported in the *Journal of the American Medical Association* 1922 lxxviii 643. Recently a similar case has been recorded in the *Centralblatt fuer Gynaekologie*.

ATHEROMATOUS CYSTS OF THE UMBILICUS

In a survey of the literature¹ I noted six genuine instances of atheromatous cysts of the umbilicus. The major portion of those reported seemed to be cases of umbilical infections with concretions and not atheromatous or dermoid cysts.

During the last 5 years I have observed three cases: one at The Johns Hopkins Hospital, Dr. H. H. Hampton, then resident surgeon at the Hebrew Hospital, removed the

second, and the specimen of the third case was sent me by Dr. Edwin Dargan Smith of Louisville, Kentucky. In Dr. Hampton's and also in Dr. Smith's case the condition was noted at or shortly before birth. The mention was until the present.

These tumors may spring from the umbilical depression or from the wall of the umbilicus; they are usually pedunculated, may reach three or more centimeters in diameter, are covered with skin, are usually flaccid, are thin-walled, have smooth inner surfaces and are filled with grumous or crumbly material.

They are lined with a more or less well-developed squamous epithelium, and are de-

veloped from the umbilical tube. They contain fat droplets and frequently cholesterol crystals. These cysts are easily removed.

¹Deveraux of the *Lancet* on p. 206.

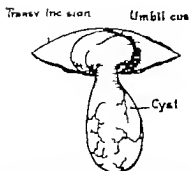


FIG. 3. An atheromatous cyst of the umbilicus. This is a copy of the sketch made by Dr. Edwin Dargatzis Smith of Louisville, Kentucky, prior to his removal of the umbilical cyst. It was pear-shaped, measured by a

Inspection of the umbilicus shows a slightly

Dr. Rytina, in summing up the essential points in the case says: The most interest

factor in the production of the lesion. The diagnosis of the lesion was easily made by its typicalness, being exactly similar to the condylomata ani, which the patient also had. The certainty of its luetic nature was demonstrated by the presence of the spirocheta pallida and its rapid disappearance after the institution of antisyphilitic treatment.

BLUISH DISCOLORATION OF THE UMBILICUS AS A DIAGNOSTIC SIGN IN RUPTURED EXTRA-UTERINE PREGNANCY

In 1919 I reported and Max Broedel illustrated a new sign that may prove of

Thomas S. Coffey: Bluish discoloration of the umbilicus etc. (contributed to Medical and Podiatric Research, Dedicated to Dr. & Queen Esther on occasion of her twentieth birthday July 2, 1920 by her pupils and co-workers)

value in the diagnosis of some tubal pregnancies where the abdomen contains an abundant quantity of free blood. If the hemorrhage has been a sharp and severe one, the clinical symptoms are so evident that operation is at once undertaken. But occasionally the bleeding has evidently been slow but persistent. In such cases the abdomen may accumulate a large quantity of blood without the patient having given any evidence of shock.

In such a case the umbilicus may in some manner imbibe the blood and appear bluish black, so that in time we get the same play of colors at the umbilicus that one does with a black eye—the greens and yellows.

On March 1, 1918, there entered the Church Home and Infirmary a thin, very woman (C. H. I.)

detention

Operation, March 27, 1918. With the patient asleep the uterus was found to be slightly enlarged. To the right of the uterus was a freely movable mass, about 8 centimeters long by 5 centimeters broad.

Prior to opening the abdomen I dictated the following notes: The bluish-black appearance at

uterine hernia

On opening the abdomen I found it filled with

within a few days after operation. The gradual change in color that took place in the umbilical region reminded me strikingly of the changes in color that occur in a black eye resulting from a blow.

I recorded this case in order that subsequent ruptured extra-uterine pregnancies may be examined for this sign. Whether it will prove to be of common occurrence or very rare I cannot say, but we shall naturally expect it only where there is free blood in the

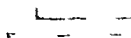
report of an interesting umbilical cyst he had recently removed together with portions of the specimen



pear-shaped, measured approximately 2 by 3 centimeters and was attached to the umbilicus by a

small pedicle to the line shown (Fig. 6). There was no pain referable to the umbilicus.

Operation November 8, 1918. A transverse in-



was discharged November 17.

Dr. Stuart Graves, pathologist of the Louisville City Hospital, found that the cyst contained a cavity 1 centimeter in diameter. It was filled with a pasty, pale granular, and rather dry material. This material under the high power was found to be crystalline in nature. It dissolved in a mixture of bockol, alcohol and ether. Dr. Graves found it impossible to get satisfactory sections of the cyst wall, and we had the same trouble.

The cyst was lined with what looked like an embryonic epithelium apparently of the squamous cell type. In some places this was two or more layers in thickness. The nuclei were oval and vacuolar but the individual cells were not well differentiated. At other points there was a well defined squamous epithelium, several layers thick, and covering the surface of this was what appeared to be an ill-defined horny epithelium.

Undoubtedly this was a small atheromatous cyst of the navel.

ADENOMYOMA OF THE UMBILICUS

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literature

These growths naturally occur only in women. They are small, occasionally swell up at the menstrual period and sometimes cause a slight escape of blood from the umbilicus during the period.

Histologically they consist of non-striped muscle and fibrous tissue with uterine mucosa

Diseases of the Umbilicus, p. 273

contents

scattered here and there throughout the nodule.

Recently two further cases have come under my notice. These were published in detail in the *Archives of Surgery* 1920 vol. 1, 279.

SMALL NAEVUS OR HEMANGIOMA OF THE UMBILICUS

Small naevi of the skin are relatively common but in only one instance have I ever noticed a naevus at the umbilicus. Histologically it was similar to those found in the skin. Under ordinary circumstances no attention would have been paid to it but the

C. H. I. No. 20361. H. E. S. 30 years of age was admitted to the Church Home and Infirmary early in 1919.

cept
navel
what
bleed

(Plate 1, D). This seemed to be a naevus.

Operation January 14, 1919. As the umbilical discharge worried the patient considerably we thought it wiser to remove the area. This was done. The wound healed by first intention.

Gyn. Path. No. 24561. The squamous epithelium over the small bluish red mass is only two or three layers in thickness. Immediately beneath

never ulcerated and occasioned little pain. Recently it had increased in size.

negative.

Operation. Under 1 per cent novocaine an elliptical incision about 5 centimeters in length including the tumor was made across the abdomen and carried down to the peritoneum. The tumor



FIG. 1. Pseudomucinous cysts.

tered here and there between the epithelial cells were small round cells or polymorphonuclear leucocytes many of which were eosinophiles. The connective tissue immediately beneath the epithelium showed a very active inflammatory reaction, young connective tissue cells, small round cells and polymorphonuclear leucocytes being present. The rest of the

FIG. 2. Pseudomucinous cysts.

SMALL UMBILICAL CYSTS SECONDARY TO A PSEUDOMUCINOUS CYST OF THE OVARY

By some pseudomucinous cysts of the ovary are looked upon as benign, by others as malignant. I think if we take a position midway between these two views we shall be nearer the mark.

When we follow the clinical course of these cases, we note that in some there is a rapid return of the growth, in others years may elapse before a second operation is necessary.

these were identical in character with the large ovarian tumor.

This is the only instance so far as I know where a pseudomucinous cyst of the ovary was accompanied by umbilical cysts of the same type. They were of course secondary.

C. H. I. N. 1922 Mrs. M. D. of Knoxville, Tennessee, came to see me on May 27, 1918, complaining of marked abdominal enlargement.

She had never had any children. Her menses had ceased suddenly at the time of the Baltimore fire (1904) and never reappeared. She was 37 at that time. In 1900 she had had peritonitis and was ill 7 weeks.

Her abdominal enlargement dated back about 3 months. For the last weeks she had had a bron-

th

no

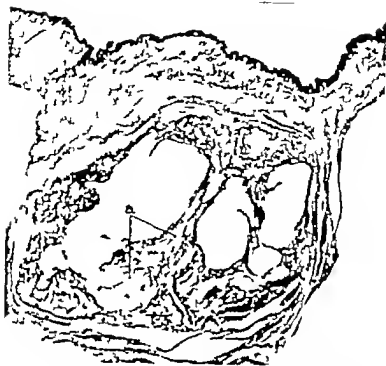


Fig. 2. Small pseudocystous cyst of the umbilicus, secondary to large pseudo-

re. Figure

— Section 2, 1916

PAPILLOMA OF THE UMBILICUS

The literature on this subject I have collected and published in my *Diseases of the Umbilicus* p 360.

On September 20 1916 Dr N B Carson of the Barnard Free Skin and Cancer Hospital, St Louis, Missouri, sent me a photograph and slides of a papilloma of the umbilicus. This case was published in the *Annals of Surgery* February 1917 p 199.

The patient A C, male white age 77 was admitted to the hospital on October 25 1915. He

cate intervening stroma would bear a striking resemblance to lung tissue. The line of demarcation between the blood vessels and the underlying fibrous tissue is sharply defined.

The picture is that of an angioma. Clinically it is of little significance. Histologically it is very interesting.

MOLES OF THE UMBILICUS

On one or two occasions I have noted small pigmented moles in the umbilical depression or along its side. Dr Leo Braly resident gynecologist Johns Hopkins Hospital, has also noted them. They have occasioned no trouble.

There had been no

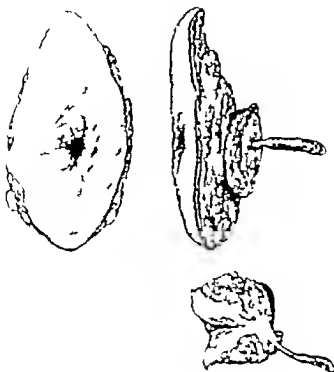


Fig. 1. Adenocarcinoma of the umbilicus, probably secondary.
Gyn. Path. 1/1
Hanna
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by 1/1/1

and that the squa-
to disappeared and
The growth
as primary or sec-

UMBILICUS IN MEXICO—SECONDARY GROWTH

undoubtedly secondary to the carcinoma of the pylorus.

The case is reported in detail elsewhere.

Carcinoma of the Umbilicus Secondary to Carcinoma of the Intestine

Carcinoma of the umbilicus secondary to malignant growths in the intestine is rare (see *Diseases of the Umbilicus*, p. 425).

On September 25, 1916, I received the following letter from Dr. M. G. Wohl, pathologist of the Nicholas Senn Hospital: "I am

Frank Warner, carcinoma of the umbilicus. Surg. Gynec. & Obst. 1917, 25: 250.

sending you under separate cover two slides from an umbilical malignant growth. Will you be kind enough to express your opinion upon them?"

The history of the case is as follows:

Mrs. C., age 60 years. She had always enjoyed good health. For the past 6 months she had noticed a lump in the umbilical region. This annoyed her but caused no pain.

Upon examination nothing abnormal was found except a protruding mass at the umbilicus which was adherent to the underlying tissues.

Operation disclosed a mass the size of a child's



Fig. 4 Epithelioma of the umbilicus emanating from an external atrophic scar following severe roentgen ray burn. (After Hechtigfeld)

abdominal growth seemed to have pushed the pelvic structures up into the abdomen.

Operation June 4, 1918 On opening the abdomen we found quantities of free colloid material. This was removed as far as feasible. We then took away a large pseudomucinous cyst of the right ovary. The appendix was twice the natural size and also thickened.

The peritoneal surface of the umbilicus was perfectly smooth. The patient's recovery was uneventful.

has apparently ruptured before operation. It is

pseudomucinous ovarian cyst of large proportions.

The umbilicus contains several small cysts as

the connective tissue still remains. The trace of the epithelium has already disappeared. The general picture is that of a typical pseudomucinous cyst.

CARCINOMA OF THE UMBILICUS

In my *Diseases of the Umbilicus* p. 400, carcinoma of the umbilicus was fully considered and abstracts of the more important cases were given. As a result of the analysis

708-

B Secondary umbilical carcinoma (1) from the stomach (2) from the gall bladder (3) from the intestine (4) from the ovaries (5) from the uterus (6) from other abdominal organs

Primary Squamous Cell Carcinoma of the Umbilicus

Primary squamous-cell carcinoma of the umbilicus is very rare. In my book (p. 402) are recorded three cases from the literature that might possibly belong to this group.

Heidingsfeld, professor of dermatology in the University of Cincinnati in a very interesting article entitled "Etiologic Role of Scar Tissue in Skin Cancer" gives a good picture of an epithelioma of the umbilicus, in the center of an extensive atrophic scar following a severe roentgen-ray burn.

Carcinoma of the Umbilicus Secondary to Carcinoma of the Stomach

From a study of the literature it is evident that where secondary carcinoma of the umbilicus develops, the primary growth has been most frequently noted in the stomach.

On November 13, 1917 Dr. Frank Warner of Columbus, Ohio wrote me saying that he had just seen a case of carcinoma of the pylorus with a secondary growth at the navel.

The patient was a man 52 years old. Nineteen years before he had had symptoms indicating gastric ulcer. For 6 months before admission he had had

depression shows what appears to be an irregular fibrous transformation. The firm tissue beneath

lucens and when the tissue is cut into one would not for a moment get the impression that he was dealing with a carcinoma.

The skin of the umbilicus at the margin of the ulcer shows little or no change. The surface of the

one layer of umbilical epithelium. Here the glands are dilated some of them are filled with polymorphonuclear leucocytes and the gland epithelium is thinned out, becoming cuboidal or almost flat. In the depth some of the glands are minute. The picture is that of a typical adenocarcinoma. It is probably secondary as primary adenocarcinoma is exceptional. It is of course as impossible to tell where the original tumor was

1 Malignant Abdominal Growth with a Secondary Nodule Just Above the Umbilicus

From the appearance at operation it was perfectly clear that the abdominal growth was malignant. Much as we desired to know the exact character of this growth removal of a piece of the tissue would have added to the risk and consequently we refrained from excising any. The probabilities are that the tumor was carcinomatous. The umbilical growth was undoubtedly secondary to that occupying the abdomen.

C. H. I. No. 16093 Mrs. A. C. age 71 was admitted to the Church Home and Infirmary late in May 1917. Her abdomen was markedly distended. On account of dyspnoea it was thought best to let her rest in bed for a few days before operation.

Operation July 2, 1917. Situated just above and slightly to the right of the umbilicus was a hard plaque of tissue about 3 centimetres in diameter and raised about millimetres above the general surface of the abdomen (Fig. 16). The umbilicus itself was slightly indented.

The growth in the umbilical region coupled with the marked abdominal enlargement at once suggested malignant abdominal growth with a metastatic tumor of the umbilicus.

We made a small mid-line incision below the umbilicus and let out quantities of ascitic fluid. The tumor had been converted into a solid mass at least 6 or 8 centimetres thick, and nodules were found scattered throughout the abdomen.



Fig. 16. A malignant abdominal tumor with a second nodule just above the umbilicus.

C. H. I. No. 16093 Mrs. A. C. May 9, 1917. The abdomen contained much ascitic fluid. The omentum had been converted into a solid mass over 6 centimetres thick. Nodules were found scattered through the abdomen.

We did not attempt to find the original source of the trouble as we deemed it best to let the patient go home at the earliest possible moment.

SECONDARY SARCOMA OF THE UMBILICUS

Sarcoma of the umbilicus whether primary or secondary is very rare (see *Diseases of the Umbilicus* p. 449).

The following case is the only one in which I have had the opportunity of examining sections. The growth was a perithelial angiosarcoma (Fig. 17).

On June 14, 1921 Dr. F. C. Warnham of Grand Rapids, Michigan, saw Mrs. B. age 45 who for the

hermia. She wore a truss for a time but discarded it on account of the pain it occasioned.

About the middle of March 1921 her abdomen was so distended that she was distressed.

head surrounding the umbilicus this had pushed the peritoneum into the abdomen and had entirely displaced the recti muscles. It was firmly adherent to the transverse colon. The tumor was removed together with 8 inches of transverse colon.

The patient died of peritonitis. No postmortem was obtained but at operation the stomach was found to be normal. There was, however, a nodule the size of a duck's egg in the sigmoid. It had the appearance of a adenocarcinoma.

My report was as follows:

The sections show adenocarcinoma in some places of a well-defined gland type in other places the growth is more cellular there is less stroma and there is a definite tendency for the epithelium to form solid nests.

Whether the primary growth was in the sigmoid or transverse colon cannot be determined with certainty. There was no opportunity to examine the rectal growth. Since then Wohl¹ has reported the case.

Carcinoma of the Umbilicus Secondary to Carcinoma of the Rectum

Carcinoma of the umbilicus following carcinoma of the rectum is rare. Frank Warner in 1918² reported the case of a man of 68, who for a year or more had had occasional attacks of pain and soreness in the rectum associated with attacks of diarrhea followed by constipation.

Microscopic examination showed that the primary growth was in the rectum and that the umbilical tumor was secondary.

The report is well worth a careful reading.

Probably Secondary Carcinoma of the Umbilicus—Primary Source Undetermined

In the accompanying cases the umbilical

Hospital Sayre Pennsylvania. He had just operated on F. H. a man 69 years of age.

The patient had had soreness in the umbilical

point this has disappeared, and there is a necrotic growth covering the surface. The superficial portion of this shows a rich polymorphous

the glands are much larger and the tendency toward colloid is even more marked.

It is impossible to tell where this carcinoma started. It apparently is secondary. The growth is undoubtedly malignant and the outlook is not good.

Idiopathic noma of the Umbilicus Probably Secondary

Dr. Caroline McGill, on November 29, 1920 sent me an umbilicus from the Murray Hospital Butte Montana.

The patient Mrs. G. 43 years of age 4 years before had fallen, striking the abdomen. For 3 months she had felt small mass at the site of T 10 weeks before admission it broke down forming an ulcer. It was unassociated with pain.

When the patient was first seen on November 2, 1910 she had a wide open umbilicus. Her past

primary adenocarcinoma of the umbilicus is very rare they are included among the secondary growths.

Adenocarcinoma of the Umbilicus Probably Secondary

On July 2, 1919 I received a letter from Dr. Donald Guthrie of the Robert Packer

M. O. Wohl: carcinoma of the umbilicus. Boston M. & B. J. 1917, 42: 422.

Frank Warner: Carcinoma of the umbilicus. Surg. Gynec. & Obst. 1918, 27: 684.

no real hernia, as the intestines do not protrude through the defect in the abdominal wall. Will you be kind enough to tell me if this is a true amniotic umbilicus?"

Dr Tyler's surmise was correct.

UMBILICAL HERNIA AT BIRTH

It is probable that umbilical herniae at birth are due to one of three causes or to a combination of these:

(1) Stretching of an amniotic umbilicus (2) the escape of abdominal contents through a patent umbilicus (3) the failure of the intestines to recede into the abdomen.

As we all know in the early months of foetal life the intestines extend into the cord.

Dr George L. Streeter was good enough to send me the picture from which Figure 18 has been made. Here we can readily see intestinal loops shining through the wall of the umbilical cord.

Prompt operative interference is the only treatment to be thought of. Delay of a few hours may be fatal.

On January 8, 1920, I received a letter from Dr William I. Stanton of Washington, telling me of a most instructive case that had come under his care. His report is as follows:

I am taking the liberty of writing you in regard to a case of hernia in the umbilical cord. It is the first one I have seen.

I delivered a girl baby at term in a private home on December 15, 1919, in the morning. There



FIG. 18.

the intestines were seen protruding from the umbilical cord. As one passes out, and the cord assumes its normal size and appearance. This is a typical example of hernia into the umbilical cord.

The blood vessels in the cord entered the abdomen to the right of and below the hernia. There was a small part of the cord at the junction of the hernial mass. The cord was ligated distal to the mass.

Immediate operation was advised, but the parents would not consent. The cord and hernial mass were dressed with sterile gauze and the child put to bed.

I visited the patient next morning and on examining the hernia noted that the intestines had changed in color to a dusky red. The parents were informed that unless the child was operated on the baby would perish, and that if not allowed to operate I would discontinue the case.

I finally obtained permission to operate and took the infant to the Georgetown University Hospital. Dr. Thomas F. Lowe was called to give



She had had five children. Her only previous illness had been typhoid fever when she was 20 years of age.

On
the
abdomen, and
small hernia

excised and the abdomen closed.

The patient died in 36 hours, apparently of shock complicated with pulmonary engorgement.

In answer to a further query Dr Warnshuis under date of October 28, 1921, says:

I am sorry that it was not possible to secure a postmortem because then we would have

been able to determine from just what structure the sarcoma arose. From the physical examination and from the apparent density of the mass in the pelvis I would advance the conjecture that it arose from the ovary.

Gyn Path N 27160. The specimen which consists of the umbilicus with a bit of the surrounding skin is 3 centimeters long, 2 centimeters broad. It consists in large measure of a tumor springing from the umbilical depression. The tumor measures 2 by 2 centimeters and the overlying skin is stretched and smooth. The tumor on section appears uniform, is rather soft, is somewhat porous and differs entirely in texture from these

many points it is perfectly evident that the growth

longitudinally or transversely, sometimes the spindle cells appear to run parallel with the long axis of the vessel, sometimes transversely. The more solid portions of the growth present the usual picture of a spindle cell sarcoma. There has been

sarcoma.

This is the first sarcoma of the umbilicus that we have encountered. From what Dr Warnshuis said it was impossible to determine with certainty the source of the original tumor, but he came to the conclusion that it was in all probability from the ovary.

AN AMNIOTIC UMBILICUS¹

This condition is characterized by an absence of the skin around the umbilicus, the defect being replaced by amnion which is reflected upon the abdomen from the cord. In such cases the surrounding abdominal wall is usually intact.

On July 2, 1919, Dr Margaret Tyler of the Department of Obstetrics and Gynecology of

¹ I am sending you the picture of baby born on our ward months ago. This shows several interesting features of the condition. p. 261

Autopsy showed that the peritonitis which we had found at the time of operation had persisted and that there were purulent accumulations between intestinal loops and down in both the right and left flanks as well as in the pelvis. It is almost unbelievable that a child with such widespread peritonitis could have survived 18 days after such an operation.

Had the child been brought to the hospital within the first 24 hours and before any peritoneal infection had occurred the operation would, of course, have been a very simple one and the prognosis would have been good.

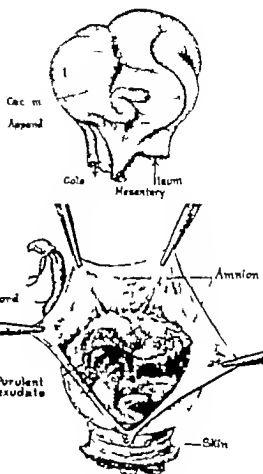
One of the most brilliant results in such a case was in the one operated on by Dr Edward N. Reed of Clifton, Arizona. This case was recorded in the *Journal of the American Medical Association* and is reported in full in *Diseases of the Umbilicus* p. 460.

A SATISFACTORY METHOD OF DEALING WITH INTESTINAL LOOPS DENSELY ADHERENT TO THE WALLS OF AN UMBILICAL HERNIA

In 1918 I saw a patient 78 years old who had a partial intestinal obstruction due to a very large umbilical hernia. At operation I found many loops of bowel so adherent to the sac that their liberation was impossible. The patient was not in good condition and we were in a serious dilemma.

Finally I dissected the skin away from the sac and then with the aid of transmitted light separated the loops from one another leaving pieces of sac attached to the loops of intestine. When all of the bowel had been untraveled we had at least thirty to forty ragged pieces of sac attached to the bowel. These patches were trimmed off precisely as would be the repair patches on the inner tube of a bicycle tire. The surfaces of the patches were relatively smooth they did not bleed. The intestines were returned to the abdomen and the hernial opening closed. The patient a physician is still in active practice although 82 years old.

This method will undoubtedly be of value



C H I No 8 m. D. H. P. T. L.

PERITONITIS OF THE URACHUS

Very little relating to the urachus has come to my attention during the last 6 years.



that is almost sure to occur where the hernia of the cord remains for several days. Even in a few hours the outer covering may become dry and crinkly and the intestines show much cyanosis.

I did not see this child until the ninth day. At this time there was a peritonitis.

Strangling and Vascular Hernia of the Umbilical Cord

C. H. I. No. 18330. Baby P. age 6 days, was admitted to the Church Home and Infirmary January 14, 1918. As soon as the baby was born a tumor was noted at the navel. The midwife, Anna Parr, said that the cord came off from the edge of the right side. The umbilical ring was 3 centimeters across, circular and projected about 1.5 centimeters from the surface of the abdomen (Fig.

the membrane covering the tumor. The surface of the tumor was covered with pus and it had a very fetid odor.

up and the intestinal contents were exposed (Fig. 20). The mucous membrane was gradually peeled

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ether and we operated at two in the afternoon.

An incision was made through the umbilical ring and continued for about 2 inches. The bowels were

in the lower angle of the incision. The child during the operation well but was very cyanotic before it woke up.

January 15. The child has taken some food with a little sugar and also has taken the breast. As a result of enemas fecal matter has been discharged by the rectum.

After several days there was a discharge and some fecal matter escaped from the umbilicus. At

moved on the 15th day.

The following case exemplifies the tragedy

January 2, 1918. The child started vomiting and Dr. Charles L. Summers saw it with me. The infant was apparently doing well until this morning at 6:30 when he suddenly died.

inserted at the umbilicus and about 4 5 ounces of normal urine were recovered. The orifice was gently dilated and the tense fullness of the urachus and bladder had by this time disappeared.

The patient was removed from the hospital the next day by its parents. The living conditions at their home were unfavorable and the baby succumbed at the end of 10 days from inanition. No autopsy was obtained.

COMMENT

In the foregoing pages I have given a short account of the umbilical and urachal conditions that have come under my observation during the last 6 years. Our knowledge concerning lesions of this region is steadily increasing. If pathologists, physicians and surgeons will systematically record abnormalities of the umbilicus coming under their care, only a few more years need elapse before our knowledge of diseases of the navel will be fairly complete.

I cannot let the opportunity pass without thanking those who have written me and also sent me specimens, slides and pictures of their cases. I am under many obligations to Dr. John Howland. Any interesting umbilical case coming to his clinic at the Harriet Lane Hospital has been brought to my attention, not only for observation but also for treatment.

Dr. Max Zinninger has been good enough to locate quite a number of the cases for me. My heartiest thanks are due to my friend Max Broedel, director of the department of art in medicine, for his excellent drawings, and I am indebted to Mr. Hermann Schapiro for the photomicrographs which are unusually good considering the thick sections I furnished him. Dr. Benjamin O. McCleary and Mr. Joseph Hoffman have helped me continually in the preparation of the article.



Fig. 1. Persistence of the lower end of the urachus.
 V. = Vagina. U. = Urachus. The rest of the drawing is illegible.

Persistence of the Vesical End of the Urachus

C. H. I. No. 17084. Mrs. M. K. age 31 entered the Church Home and Infirmary June 11, 1917.

277. THE URACHUS. As a girl with an enlarged bladder we approached the bladder. We clamped the

Absence of the Rectum in Imperforate Anus Imperforate Urethra, Marked Dilatation of the Urachus

At the meeting of the Southern Surgical Association at Pinehurst, North Carolina, December 14, 1921 Dr. John E. Cannaday of Charleston, West Virginia, gave me a written report of the following case:

On July 20, 1921, a male infant 16 hours old, was referred to me by Dr. W. H. Blair of Charleston, W. V.

I have seen one case with persistence of the vesical end of the urachus, and recently Dr. John L. Cannaday of Charleston, West Virginia, gave me the report of a case in which there was marked dilatation of the urachus associated with an imperforate urethra and absence of the rectum.

On January 25, 1922, when opening an abdomen in a case of pelvic inflammation, I encountered a urachal cyst measuring about 10 cm. in diameter. The contents clear

dilatated.

Urinary bladder greatly dilatated. Urachus dilatated all the way from the umbilicus to the

in diameter

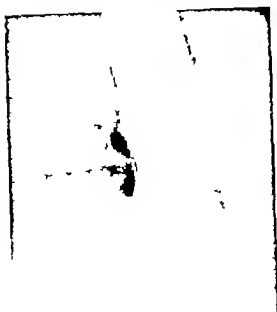


Fig. (A37727) Roentgenogram of the oesophagus filled with barium showing the structure of the cardia.

144 systolic during the last hour of operation falling to 110 systolic and 102 diastolic just as operation was completed. The patient was transfused with 500 cubic centimeters of blood not so much because of loss of blood as because of the severity of the operation. His blood pressure one-half hour after operation was 120 systolic and 100 diastolic. The morning after operation his pulse was 55 and the quality was fair. His temperature was 38.5. Fluid was administered by proctocolon about 2 liters being absorbed by rectum the first 24 hours. The pulse remained about 50 for 48 hours and then dropped to between 40 and 50 where it remained for the next week. The temperature rose to 101.2 the day following operation and then gradually subsided to normal on the sixth day with slight fluctuations between 99 and 100 until the tenth day.

Doctor A. C. Brodus reported on the specimen as follows: The vessel specimen consists of a cardiac portion of the stomach and about 4 centimeters of the lower end of the oesophagus. An anular carcinoma of the stomach has infiltrated beneath the mucosa producing a mass measuring in the fixed specimen 7 by 7 by 2 centimeters. In areas the growth tends through the serosa. There is practically no ulceration. The whole picture is not unlike the latter bottle type of carcinoma in that it shows little tendency to produce ulceration of the mucosa. The growth involves the lower portion of the oesophagus. A number of lymph nodes show metastases. There is a margin of normal tissue several centimeters wide above and below the growth.



Fig. (A37727) Roentgenogram showing resection of the fifth to the eleventh ribs inclusive with collapse of the lower portion of the left thorax.

Three days after operation the crushing clamp

wound in the skin healed promptly. A small pocket below the oesophagus was kept clean by irrigation.

were added to the diet. The caloric intake was increased after a few days to from 2,500 to 3,500 calories daily. On the fourteenth day a 5 millimeter tube was inserted into the two stomata, and

effort but slowly.

During the second week there was a tendency to diarrhea but this subsided. On the twenty-third day the stool was formed and has remained so. On the tenth day the patient sat up in a chair. He was very weak, however, and as his haemoglobin was found to be only 42 per cent he was transfused on

COMBINED TRANSPLURAL AND TRANSPERITONEAL RESECTION OF THE THORACIC OESOPHAGUS AND THE CARDIA FOR CARCINOMA

By CARL A. HEDBLOM, M.D., F.A.C.S., ROCKFELLER, MICHIGAN
Section on Surgery Mayo Clinic

MAY 15, 1922 I resected the thoracic oesophagus and the cardia for carcinoma involving both structures. The operation followed a preliminary resection of the fifth to the eleventh ribs and was performed under local anesthesia and gas and oxygen analgesia. The left pleural cavity and the peritoneal cavity were opened widely, the diaphragm was split down to the hilum, the oesophageal stump was sutured to the skin edges in the middle axillary line and the gastric stump was brought to the surface near the line. The patient recovered from the operation and is able to take food by mouth through a tube connecting the stomach

tending outward and upward to the anterior axillary line.

REPORT OF CASE

CASE 1
 Clinic M
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 globin was 75 per cent and the leucocyt count normal. The Wassermann reaction on the blood, examination of the urine and roentgenogram of the

ages. Palpation now revealed involvement of the lower thoracic oesophagus. The right vagus trunk was separated at the hilum and the left trunk was cut. There was no appreciable change in the patient's pulse or respiration during the procedure. The lower portion of the oesophagus and the cardia were mobilized and about 4 centimeters of the thoracic

was made. I carcinoma of the oesophagus. The patient after being advised of the seriousness of the situation favored operation which would offer him chance for cure.

catgut and silk worm gut

ciently to reach the depressed skin margins and it lacked several centimeters of reaching the level of the hiatus of the diaphragm.

The first successful complete gastrectomy was performed by Schlaetter in 1897. There is some uncertainty as to whether many of the cases reported later were complete gastrectomies. Forty-six cases are reviewed in the literature. In 1917 W. J. Mayo performed a total gastrectomy including about 16 millimeters of the oesophagus. The patient is in fair health 5 years after operation.

Resection of the cardia for carcinoma, mobilizing the normal oesophagus at the hiatus and pulling down the thoracic portion sufficiently to effect an anastomosis to the stump of the stomach or loop of the jejunum below the diaphragm without leakage has proved very difficult. The operation was first successfully performed in 1908 by Voelcker who pulled the oesophagus down and anastomosed it to the resected stomach. The site of anastomosis leaked for 4 weeks and then healed completely. The second case with a favorable outcome was reported by Kneemel in 1910. Failing in an attempt to anastomose the stumps he fastened rubber tubes into the openings in the duodenum and stomach bringing the other ends of the tubes through the abdominal incision and packing around them. Healing brought about a partial anastomosis which he proposed to complete later by operative measures. Bircher in 1918 in a third case in which the patient survived effected an anastomosis which did not leak. There was marked ptosis of the stomach, however and presumably the abdominal portion of the oesophagus was also elongated.

Complete gastrectomy seems to have been more successful than resection of the cardia, probably for the reason that in most of these cases practically all of the abdominal oesophagus has been left for the anastomosis.

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Fig. 5. (A987727) Photograph of the patient taken 10 months after operation.

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FIG. 3 (A197727) Photograph of the excised specimen, the stomach and esophagus laid out in anatomical direction. *a*, Lower thoracic esophagus; *b* and *c*, the borders of the tumor; *d*, the normal gastric mucosa.



FIG. 4 (A197727) Photomicrograph showing the rapidly growing, highly malignant carcinoma in close relationship to the squamous epithelium of the esophagus.

July 21 the patient has gained several pounds.

DISCUSSION

This is the second reported case in which operation was performed by this method. The first case was one reported by Zaaijer in 1913. His procedure differed only in that he performed a preliminary Rader gastrotomy and a single stage rib resection but the patient developed alarming respiratory embarrassment

large number of patients by the transpleura

site of anastomosis invariably occurred. Only one case promised a successful outcome but the patient died from pneumonia on the fourteenth day. Many cases have been re-

the time of the report about 1 month after the resection.

The first attempt to resect the thoracic esophagus and the cardia for carcinoma involving both structures and necessitating a transpleural exposure was made by Mikulicz, in 1896. To avoid pneumothorax he obliterated the lower anterior portion of the pleural cavity by approximating the diaphragmatic pleura to the parietal by means of sutures through the diaphragm and chest wall. The patient died of peritonitis. After Sauerbruch had perfected his differential pressure chamber he operated on a relatively

cardia was also resected recovered from the operation.

In the consideration of operative methods and case reports a clear distinction must be made between cases of carcinoma involving the hiatus and thoracic esophagus and cases in which these structures are normal. In the case herein reported it would have been impossible to effect an anastomosis between the esophagus and gastric stumps below the diaphragm even had it been possible to separate the growth infiltrating the hiatus. After the tumor with 1 centimeter of normal esophagus had been resected it was with great difficulty working within the pleural cavity that I loosened the esophagus suffi-

ciently to reach the depressed skin margins and it lacked several centimeters of reaching the level of the hiatus of the diaphragm.

The first successful complete gastrectomy was performed by Schlaetter in 1897. There is some uncertainty as to whether many of the cases reported later were complete gastrectomies. Forty-six cases are reviewed in the literature. In 1917 W. J. Mayo performed a total gastrectomy including about 16 millimeters of the oesophagus. The patient is in fair health 5 years after operation.

Resection of the cardia for carcinoma, mobilizing the normal oesophagus at the hiatus, and pulling down the thoracic portion sufficiently to effect an anastomosis to the stump of the stomach or loop of the jejunum below the diaphragm without leakage has proved very difficult. The operation was first successfully performed in 1908 by Voelcker who pulled the oesophagus down and anastomosed it to the resected stomach. The site of anastomosis leaked for 4 weeks and then healed completely. The second case with a favorable outcome was reported by Knettel in 1910. Failing in an attempt to anastomose the stumps he fastened rubber tubes into the openings in the duodenum and stomach bringing the other ends of the tubes through the abdominal incision and packing around them. Healing brought about a partial anastomosis which he proposed to complete later by operative measures. Blicher in 1918 in a third case in which the patient survived effected an anastomosis which did not leak. There was marked ptosis of the stomach, however, and presumably the abdominal portion of the oesophagus was also elongated.

Complete gastrectomy seems to have been more successful than resection of the cardia, probably for the reason



Fig. 5 (A337737) Photograph of the patient taken month after operation.

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INFECTION IN THE MEDIASTINUM IN FULMINATING CASES OF EMPYEMA¹

BY EDWARD K. DUKHAM, M.D., NEW YORK
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COMPARATIVELY recent experimental studies on monkeys have shown that the infections of the lung causing pneumonia reach the alveoli at least in many cases, by way of the interstitial tissue (1). The organisms gain access to the subepithelial areolar tissue of a bronchus and are conveyed thence to the parenchyma of the lung causing vascular damage leading to the exudate which, together with the organisms breaks into the alveoli. It is through this interstitial framework of the lung that the infecting organisms are carried to the subpleural structures, causing pleuritis and eventually empyema. The studies of Mac Callum (2), Opie and others (3) have demonstrated this course of events in many cases of empyema occurring in the Army particularly when the offending organism has been a streptococcus. An acute interstitial bronchopneumonia sometimes led so rapidly to an empyema that a massive pleural exudate

simple and inevitable consequence of the anatomical relations of the parts concerned and the abundant exudation of serum which follows infection of any soft tissues with streptococci. In other words. Given, the character of damage occasioned by the streptococcus with a primary localization in the interstitial tissue of the lung, an extension of the infection to the pericardium and peritoneum might well appear an inevitable consequence.

One of the striking phenomena of a fulminating infection of soft parts with the streptococcus is the failure of the inflammatory reaction induced in the tissues to confine the infection. It spreads rapidly along lymphatic channels but is not confined to these for a phlegmon due to the presence of the organisms in the areolar tissue is not uncommon. If this process is inaugurated in the interstitial tissue of the lung, an ex-

empyema. Fulminating cases of empyema of this nature were frequently associated with pericarditis or peritonitis or all three localizations occurred so nearly simultaneously that the

take place. Such an extension would infect the mediastinal structures and bring the organisms into a relation to the parietal pericardium similar to that which in the

The statistical data furnished by approximately 4,000 cases collected in the form of special empyema records of non-traumatic empyema in the Army within the United States, led to the belief that these cases of polyserositis were in reality not the result of any special predilection of the streptococcus for serous membranes, but might be a very

tissue they may be conveyed to the subperitoneal structures for the external coat of the esophagus and the adventitia of the

this assumed extension. An infection so freely open to lymphatic drainage would almost inevitably lead to entrance of the organisms into the blood stream.

The sequence of events here pictured would doubtless long since have become familiar to clinicians had the process been

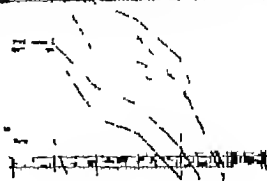
TABLE I--EMPYEMA 536 CASES--WITH AUTOPSY DEATHS GROUPED IN PERIODS OF ONE WEEK

[illegible]

a leisurely one or one less rapidly fatal. There is no definite record showing the recognition of acute mediastinal infection during life among the histories of 3,889 cases of empyema yet this condition was

cent. There was however one case which may have been a mediastinal abscess which was recognized during life and successfully treated by trephining the sternum. This may however have been a pleural pocket extending across the median line there being no way of reviewing this case to determine whether the pus was within or outside the pleura. Of these 67 autopsied cases with mediastinitis, 42 died within 1 week after the date on which the existence of an empyema was first recorded.

Forty-six of the cases were definitely associated with streptococcus in the pleural exudate 11 with pneumococci of which the type was determined in 10 with the following results: Type I 1; Type III 1; Type II 8. Fifty-seven, or a little over 85 per cent, had bilateral pneumonia 44 (nearly 66 per cent) had bilateral empyema 35 (52 per cent) pericarditis and 8 (nearly 12 per cent) peritonitis. Of all the fatal cases of peritonitis, nearly 8 per cent presented a mediastinal infection sufficiently striking to be noted at autopsy and this is also true in 11.5 per cent of the cases in which a pericarditis was mentioned in the protocol. The fulminating character of the cases is shown by the fact that in 26 (nearly 39 per cent) no operation was attempted.



There is no evidence that the pathologists assigned to Army hospitals laid particular stress upon these mediastinal infections or their association with pericarditis. It is obvious that a mediastinal infection might be secondary to a pericarditis and this was the explanation of its occurrence which appears to have been generally accepted when attention was directed to an association between the two conditions. But there was a case at Camp Logan in which the postmortem findings were interpreted as indicating that the pericarditis was secondary to a mediastinal infection as is shown by the following note made by Major J. M. Wallis. In this case a diagnosis of empyema of the anterior mediastinum was made and obstruction from compression of the trachea demonstrated more than a week before death. The suddenness of the development of the right empyema and the purulent pericarditis, with the finding of a definite tract from the mediastinal abscess to the pericardium led

TABLE II—EMPHYEMA STREPTOCOCCUS INFECTIONS 339 CASES WITH AUTOPSY DEATHS GROUPED IN PERIODS OF ONE WEEK

| Period of Death, weeks | Total cases | Pericarditis | Pneumonia | Pericarditis | Pneumonia | Pericarditis | Pneumonia | Pericarditis | Pneumonia | Pericarditis | Pneumonia |
|------------------------|-------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| 0-1 | 199 | 74 | 26 | 85 | 44 | 76 | 28 | 7 | 16 | 14 | 14 |
| 1-2 | 94 | 21 | 29 | 21 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| 2-3 | 43 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| 3-4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 4-5 | 107 | 75 | 27 | 113 | 48 | 106 | 40 | 60 | 8 | 26 | 7 |
| 5-6 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Total | 506 | 264 | 277 | 506 | 264 | 277 | 506 | 264 | 277 | 506 | 264 |

growth was obtained in three the cultures yielded pneumococcus Group IV and the remaining two cases streptococci, one hemolytic and the other not (4). It is worthy of remark that in all the instances in which there were positive findings the organism was either a streptococcus or pneumococcus, Group IV. In all these cases the corresponding organism was found in the blood post mortem.

It would be difficult from autopsy findings alone to determine definitely the actual sequence of events leading to the conditions found. But the statistical and experimental evidence at least suggest that a mediastinal infection may be an intermediate step between infection of the areolar tissue within the lung and a pericarditis originating in the parietal layer of the pericardium.

The statistical evidence is taken from special emphyema records collected for the *Medical History of the Great War*. The data are summarized in the accompanying tables (Tables I and II and charts Figs. 1 and 2).

The tables give the total number of cases, and of these the number in which bilateral pneumonia, bilateral emphyema pericarditis, mediastinal infections and abscesses or phleg-

us to believe that the mediastinal trouble was the source of origin of the other suppurations." The clinical history of this case has not been traced but an extract from the

heart was highly normal. valves normal. At the bifurcation of the

Bacteriological examinations of the mediastinal fluids were rarely made at autopsy. There is a report from Camp Bowie of eight such examinations made upon cases in which both mediastinal and subcutaneous emphysema were present. In three of these no

occurred after the infection. The percentages which these fig-



Fig. 3. Coronal section through thoracic cavity (Ver 652, Army Medical Museum)

the pleura, and one each with pneumococcus Types I and III.

While statistics of this character are highly suggestive they are not wholly convincing for they do not reveal the mechanism by which the infection is conveyed. The infecting organisms might be carried by the circulating blood or they might follow the spaces in the areolar tissue or be transported through lymphatic vessels.

If it were possible to demonstrate by microscopical examination the presence of bacteria in the mediastinal tissues in a case of empyema complicated with pericarditis in which it was known that the blood was sterile the localization of these bacteria and the manner in which they immediately

Medical Museum has resulted in securing a specimen suitable for such study.

The case was private admitted to the Base Hospital at Camp Hancock on January 7, 1910.

On February 4, 8 days after admission, a small area of consolidation of the lung on the left side was

outline of the heart increased but there were no friction sounds. He died that morning at 11 o'clock.

An autopsy was held the following day at 1:30 in the afternoon, 26½ hours after death. The following is transcribed from the protocol.

Left pleura. Full of cloudy, yellowish, thin fluid in which are many shreds of whitish coagulum. The lower posterior part of the lower lobe of the lung is

Left lung. Compressed, but solid throughout, practically surface. The cut surface appears uniformly dark red and yields a moderate amount of bloody fluid. There are no evident plugs of fibrin in the alveoli. The bronchi are congested and con-

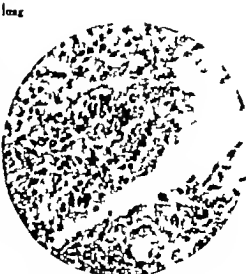


Fig. 4. Section through small bronchus in case of acute interstitial pneumonia (Ver 3048, negative 30927, Army Medical Museum)

Right lung. There is a wedge-shaped segment of consolidation in the lower lateral portion of the

the tissue are
appear firmer
ceral layers
on a recent
tumors of

cloudy fluid, but no excess

Heart. Large, muscle pale, cloudy and friable with moderate hypertrophy of the left ventricle. The right side contains a tenacious yellow clot but the endocardium and valves are smooth.

Final diagnosis. Lobar pneumonia, left

pericardial fluid and the upper lobe of the right lung. Culture media inoculated with blood from the heart remain sterile.

The thoracic organs were removed at autopsy.

one or more tiny subpleural abscesses can be discerned. A heavy fibrinopurulent exudate agglutinates the two pleural surfaces in this region. The



Fig. 5. Section of lung including small bronchioles. There is a perivascular infiltration of the peribronchovascular sheath (H. E. 6960, negative 32465, Army Medical Museum).



Fig. 6. Early stage of pleuritis. Streptococci in serous exudate beneath the endothelial layer. (Negative 32465, Army Medical Museum.)

pericardial sac is lined with a much thinner layer of fibrin and when opened at autopsy contained a serofibrinous exudate. It was recognized at the autopsy that the mediastinum was also affected, but no cultures were made from the serous fluid.

Fig. 7. Lung so as to include the two layers of the pleura with the intervening exudate. The adjacent pericardium and the thin layer of connective tissue lying between this and the parietal pleura

Calcium

It will assist in the interpretation of the microscopic pictures presented by these sections if the pathological processes which lead to an interstitial pneumonia and subsequent empyema are briefly reviewed. For this purpose the following photographs made at the Army Medical Museum serve admirably (Figs. 4, 5, 6 and 7).

Figure 4 shows a portion of the wall of a blood vessel and cellular either below and the

the pus occupying the lumen. In the neighborhood of the accompanying artery the suppuration has extended into the peribronchovascular interstitial tissue.



Fig 7 Section of mediastinal lymph gland (see 1905, R. R. H. 3905, Army Medical Museum)

Figure 6 is taken from a section through the periphery of the lung at a stage in the extension of the interstitial infection when the organisms have reached the subendothelial towers of the pleura. These are infiltrated with serum containing leuco-

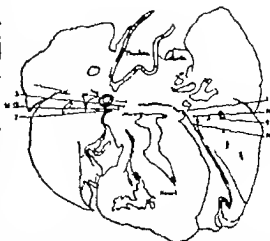
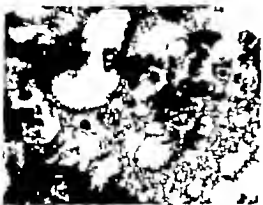


Fig 8 Outline drawing of Figure 5, showing the regions from which specimens were taken for microscopical examination. Numbers indicate figures.

has revealed the presence of isolated diplococci in several situations within the mesothelium. In some places they lie between the fibers of connective tissue where these are somewhat separated, and

Returning to the specimen from Camp Hancock, careful microscopical search through these sections

fields in which the organisms were found are reproduced in Figures 9-15. These photographs



but attempts to photograph were unsatisfactory.

The diplococci in these sections are morphologically identical with the diplococcus forms in exudates occasioned by the hemolytic streptococci. They are not in lymphatic vessels, but lie free in the interstitial lymph which circulates between the

to the formation of a group of organisms with the production of short chains. Furthermore there would probably have been a more pronounced



Fig. 1. Displacement in adipose tissue, below left lung (Slide 655—U. S. Army Medical Museum. Photographed at the Rockefeller Institute for Medical Research.)

In comparison with these observations it is of interest to make a similar examination of the mediastinal tissues from a case in which a culture from the blood made before death revealed the presence of streptococci.

A section of the mediastinal fat from such a case is depicted in Figure 16. Here one of the two capillaries lying between the fat cells contains

plasma or interstitial fluid upon the surface is a serofibrinous exudate in which streptococci are abundant. It is worthy of note that, although the underlying fibrous tissue is wholly denuded in a portion of this section, it is not invaded with micro-organisms in any degree markedly greater than was the case in the earlier stage of pericarditis shown in Figures 17 and 18. This suggests that the flow of the exudate toward the serous cavity

ceased and an inflammatory response to their presence was no longer possible.

Returning to the case in which the blood was sterile it is of importance to study the condition of the parietal pericardium.

Figures 7, 9 and 10 are photographs of sections from regions where the pericardium overlies the mediastinal connective tissue. The exact localities from which these sections were made cannot be shown in Figure 8 because they lay in a plane somewhat anterior to the one represented by this photograph but have been indicated as nearly as possible by the figure 7 on that diagram.

In Figures 17 and 18, very early stage of pericarditis is shown. A small collection





Fig. 2 Duplication in serofibrinous exudate into the fat and areolar tissue of the mediastinum (Slide 6 92-2-b, Army Medical Museum. Photographed at the Rockefeller Institute for Medical Research.)

from these tissues protected them against particulate invasion.

The failure of micro-organisms to pass from a serous cavity into the surrounding tissues after productive inflammation has formed a "pyogenic membrane" of granulations is a matter of common experience and is readily understood so long as this membrane remains undisturbed. But the section through the parietal pleura depicted in Figure 30 suggests that the flow of a serous exudate toward the cavity during the inflammatory



stages preceding these productive phases may serve as a protection against the entrance of micro-organisms. It is noteworthy that in cases of empyema the costal wall external to the parietal pleura, is very rarely the seat of localized suppurations unless the result of trauma.

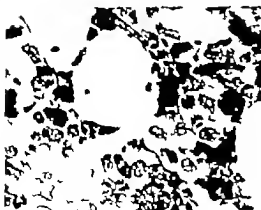


Fig. 3 Duplication in serofibrinous exudate into the fat and areolar tissue of the mediastinum (Slide 6 92-2-b, Army Medical Museum. Photographed at the Rockefeller Institute for Medical Research.)

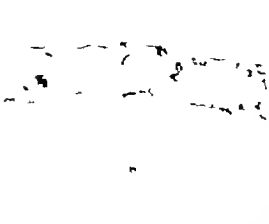


Fig. 7. Parietal pericardium overlying mediastinal

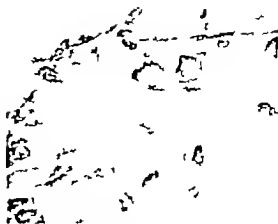


Fig. 8. Similar to Figure 7 but from situation a little anterior (Slide 6152-4, Negative 3307 Army Medical Museum).

In Figure 20 the remains of the parietal pleura can be discerned as a necrotic strand on one side of which the fibrinopurulent exudate within the pleural cavity contains innumerable streptococci. On the other side of this pleural vestige, no micro-organisms could be recognized with certainty in the serofibrinous exudate that separates the tissue elements forming the deeper layers of the parietal pleura. It is hardly conceivable that the damaged endothelium could in itself constitute a continuous and effective barrier against the passage of even non-motile bacteria. But the coagulations incident to the necrosis of that endothelium together with a flow of fluid however sluggish may perhaps suffice to explain the rarity of a transportation of bacteria outward from the cavity.

When the bacteria are primarily in the subendothelial tissues, these conditions are reversed as is shown by the frequency with which pleural infections follow those of the lung particularly when the offending organism is of a variety causing the formation

tended to include the occurrence of peritonitis. This inquiry does not demand a search for micro-organisms along the possible paths of transmission for it has already been shown that they come to lie in the interstices of the mediastinal tissues and it is known that because of some mode of transmission they are also present in the peritoneal exudate. It will suffice to show that the tissues intervening between the mediastinum and subperitoneal tissues are also the site of acute exudative inflammation. Such intermediate structures are represented by the external areolar coats of the aorta and oesophagus.

In the case of the aorta that an acute exudative inflammation may occur is completely demonstrated by the section through this vessel shown in Figure 21. An abundant serofibrinous exudate occupies the meshes of the areolar tissue of the aortic adventitia which is continuous with that of the mediastinum and the subendothelial tissues of the peritoneum.

That the outer coat of the oesophagus may likewise be affected by an acute exudative inflammation is apparent upon inspection of gross specimens. An example is given in Figure 22. The wall of the oesophagus is greatly thickened and of a light gray color due to the infiltration with inflammatory exudate. In one of the protocols of a necropsy following

with empyema revealed by the statistical data that preceded them. It remains to inquire whether this explanation can be ex-



Fig. 19. Section through parietal pleura.



Fig. 20. Section through parietal pleura.

from these tissues protected them against particulate invasion.

The failure of micro-organisms to pass from a serous cavity into the surrounding tissues after productive inflammation has formed a pyogenic membrane of granulations is a matter of common experience and is readily understood so long as this membrane remains undisturbed. But the section through the parietal pleura depicted in Figure 20 suggests that the flow of a serous exudate toward the cavity during the inflammatory

stages preceding these productive phases may serve as a protection against the entrance of micro-organisms. It is noteworthy that in cases of empyema the costal wall, external to the parietal pleura, is very rarely the seat of localized suppurations unless the result of trauma.





Fig. 2. External portion of horizontal section of



way of the thoracic duct or might take place within an inflamed lymph gland where the

the powers of defense against secondary infections

Emphysema of the neck was noted in two of the cases of empyema included in this series (vide Table III). In one of these an emphysema of the mediastinum was recorded in the protocol.

It is not obligatory to assume that the direction taken by the infected fluid within the mediastinum and contiguous areolar tissues must be identical with the normal flow of lymph for the fluid is not confined to lymphatic vessels. It also occupies the interstitial spaces of the areolar tissue which may be likened to a sponge the meshes of which in these cases of infection are constantly replenished with fluid derived from the damaged vessels and at frequent intervals urged by violent dyspnoeic respiratory effort or coughing to expel this fluid along any path which may be open.

Further consequences of infection of these tissue fluids would be the invasion of the areolar tissues of the neck and the eventual

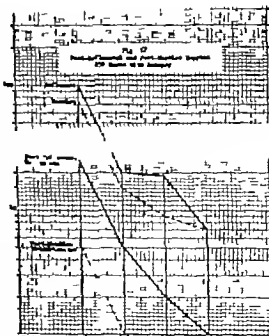


Fig. 3

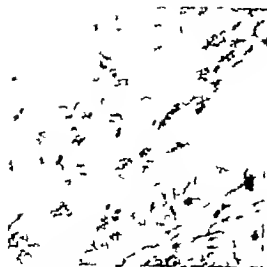


Fig. 9. Parietal peritoneum overlying mediastinal connective tissue. Somewhat more advanced stage of peritonitis. (Slide 6574, Army Medical Museum. Photographed at the Rockefeller Institute for Medical Research.)



Fig. 10. Section through the parietal pleura, showing the apical segment evolute within the pleural cavity and a serofibrinous exudate in the subendothelial spaces which are continuous with those in the pericardium.

empyema, this inflammation of the oesophagus was so striking that a special note was made of the occurrence of an acute oesophagitis.

In the cases of peritonitis associated with empyema, the inflammation is frequently confined to the upper part of the peritoneum, being described in the autopsy protocols as an acute fibrinous perihepatitis, perisplenitis, or a fibrinous agglutination of the stomach to neighboring viscera. In some instances, the subphrenic and perinephritic abscesses, which occur in the course of empyemata,

tract of least resistance by the respiratory movements of the thorax which are more vigorous than normal because of dyspnoea and coughing.

Interstitial emphysema was a not very rare complication of influenza and this fact raises the question: What antecedent diseases, other than pneumonia, occurred in the cases of empyema in which mediastinal infection was observed at autopsy? In answer to this question, the available data concerning influenza and measles have been brought together in Table IV and Figure 17.

Taken at their face value these figures show that exactly one-quarter of the autopsied cases that died with empyema following influenza during the first 3 weeks after the incidence of the empyema had an infection in the mediastinum. The proportion falls to a little less than 1 in 15 when the antecedent disease was measles but shows the same constancy during the first 3 weeks. The relatively high incidence of mediastinitis in empyema following these two epidemic diseases supports the view that they impair

by the interstitial emphysema that starts in the lungs. The air gains access to the interlobular septa, appears beneath the pleura in beaded lines of bubbles, and passes on toward the hilum. Thence it enters the mediastinum and penetrates the fasciae of the neck whence it becomes manifest as a subcutaneous emphysema that may extend to the trunk and limbs. The air is urged onward along this

ROENTGEN DIAGNOSIS OF THE MORE IMPORTANT TUMORS OF THE LONG BONES

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MY attention was first called to the importance of the roentgen-ray diagnosis of bone tumors in 1917. Soon after our entrance into the world war I was assigned duty at Cornell University and there under Major Frederick Baetger we learned something of the limited views held by physicians concerning the interpretation of the pathology found in bone tumors. Several months later —

process of elimination. By this scheme bone tumors are classified by the following plan according to (1) their origin — whether medullary or cortical (2) whether or not they are characterized by bone production by bone destruction or by both (3) the resultant condition of the cortex whether expanded or destroyed and (4) whether they are invasive or non-invasive in their growth.

CLASSIFICATION OF BONE TUMORS

| | | |
|--------------------------|--------------------------|--------------------------------|
| I. Origin | | Sarcoma |
| | | Carcinoma |
| | | Hypernephroma |
| a. Medullary | | Myceloma |
| | | Fibroma |
| | | Bone cyst |
| | | Enchondroma |
| | | Giant cell sarcoma |
| | | Periosteal sarcoma |
| | | Osteosarcoma |
| | | Osteoma |
| | | Enchondroma |
| | | Ossifying hemangioma |
| b. Cortical | | Myceloma ossificans |
| | | Bone cyst (rare) |
| | | Eosinophils |
| | II. Bone Production | |
| | | Periosteal sarcoma |
| | | Osteosarcoma |
| | | Osteoma |
| | | Eosinophils |
| | | Ossifying hemangioma |
| | | Myceloma ossificans |
| | Enchondroma | |
| | Bone cyst after fracture | |
| III. Condition of Cortex | | |
| Expanded | | Enchondroma |
| | | Bone cyst |
| | | Giant cell sarcoma |
| | | Fibroma |
| | | Sarcoma |
| b. Destroyed | | Carcinoma |
| | | Hypernephroma |
| | | Myceloma |
| | | Periosteal sarcoma |
| IV. Invasion | | |
| | | Invasive—all malignant tumors |
| | | Not invasive—all benign tumors |

collection of bone plates from the various hospitals of New York representing practically all the types of bone tumors found in the literature. Many of these were accompanied by the history of the case together with the pathological diagnosis after operation. From these we were able to make a very comprehensive study of the differential diagnosis of most bone tumors as depicted by roentgenograms.

It was surprising how much real diagnostic material could be obtained from many of these plates. The first impression gained from the observation of an X-ray plate of a bone tumor is simply one of bone destruction or bone production, or of both, but many other aspects should be considered also such as the location of the tumor, the condition of the cortex of the bone, the age and sex of the patient, the invasion of the soft parts, the point of origin and the character of the destruction.

In order to interpret the value of these observations a classification of bone tumors becomes necessary. This is best made by making four major divisions, under which each bone tumor may be classified according to its pathology. By this method the diagnosis in many instances may be either definitely made or limited to the possibility that the tumor in question is one of two or three types. In other words, diagnosis thus becomes a

We shall be impressed by the ease with which bone tumors may be diagnosed roentgenographically by means of this simple classification. The first obstacle with which we are confronted is the fact that in certain

TABLE V—EMPHYEMA STREPTOCOCCUS INFECTION

| | Death 7th week after em- pyema | Death after 4th week |
|---------------------|---|-------------------------------|
| Mediastinitis | | 4 |
| Bilateral pneumonia | 3 | 24 |
| Peritonitis | 6 | 1 |
| Pericarditis | 3 | 1 |

lymphatic and blood vascular systems come into intimate relations with each other.

In conclusion attention should again be directed to the fulminating character of the cases in which an infection of the mediastinal tissues was most frequently observed. Only those cases which died within the first 5 weeks after the inception of empyema have been included in the series studied. The incidence of mediastinitis declines rapidly in the successive weekly periods, terminating in two cases during the fourth week. If however all the cases associated with streptococcus which died more than 5 weeks after the recognition of empyema are gathered into a single group it is found that infection within the mediastinum was found at autopsy associated with bilateral pneumonia and peritonitis in quantitative relations closely corresponding to those during the fourth week. The incidence of pericarditis however falls to less than one-half of the proportion

maintained by the other conditions. The actual figures are given in Table V.

These later cases are too few in number too variable as to the interval before death and too incompletely recorded for a detailed analysis. It appears, however justifiable to conclude that a general mediastinal infection is most likely to occur before the defensive reactions of the body are marshalled to impede dissemination of the infecting organisms, but that occasionally these defenses break down after a period of relative efficiency and that the course of events is then similar to that more commonly observed in fulminating cases, only less widely diffused.

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Fig. 3. Periosteal sarcoma of tibia.

children, and is only occasionally seen between the ages of 20 and 40.

When origin is in the medullary canal develops by cell division and extends about equally in all directions the growth is progressive and invades the cortex of the bone and the surrounding tissues making an almost spherical tumor. This is in distinct contrast to infectious processes of bone which extend up and down the medullary canal, following the haversian canals and leaving areas of healthy bone or separating sequestra, thus making the lesion rather multiple in character. After the subsidence of the acute infectious process, marked new-bone formation is laid down at the periphery of the inflammatory lesion thus producing a dense periosteitis and a thick cortex. This is both a reparative process and is nature's attempt at walling off extension of the lesion. In direct contrast to this protective process are the rapidly progressive malignant processes in which no abating of symptoms allows of



Fig. 4 (left). Benign lesion of femur following a history of trauma.

Fig. 5. The bone lesion shown in Figure 4 after 4 months of X-ray therapy.

repair or of the limiting of the growth by new-bone formation.

The picture of benign bone tumors is again totally different from that presented by either malignant or infectious processes. Usually of medullary origin and slow of growth, the benign tumor gradually expands the bone and thins out the cortex. A small amount of new-bone formation at the periphery keeps the cortex intact. Also a thin dense line may be seen at the limit of the lesion in the medullary canal. These tumors are retarded considerably by resistance consequently they tend to extend up and down the medullary canal, so that the growth presents a rather cylindrical contour.

These general considerations lead to a study of the pathological characteristics of the more important bone tumors.



Fig. 1. Round cell sarcoma of tibia approaching sacro-iliac joint but limited in its extension by cartilage of joint.

cases we may not be able to determine each of the points in this classification. For instance in an advanced case we may not be able to determine the point of origin of the tumor or we may not be able to determine invasion but usually two or more of these cardinal points may be learned from the pathology seen on the X-ray plate and these will materially help in the process of elimination.

It is always possible to determine bone destruction and usually bone production as well. We must, however remember that bone destruction is materially altered by

thing, as is shown in the healing of a bone cyst after pathological fracture. These points of diagnosis are not applicable to flat bones nor to vertebrae. The importance in many cases of seeking further aid is at once obvious



Fig. 2. Tuberculous lesion of sacro-iliac joint showing extensive destruction. Penetration through the cartilage into the joint.

What else may we learn from the roentgenogram? As stated above we can always determine the location of the tumor whether in the end of the bone in the joint or in the middle of the bone near the entrance of the nutrient foramen. This last location may be the deciding point in the diagnosis of carcinoma which we know is always metastatic and is most often found near the point where the nutrient foramen enters the bone, while sarcoma is usually found in the end of the bone. Malignant tumors do not cross a joint, as cartilage seems to be a barrier to

accurately determined from the X-ray plate. This is an important observation because of the fact that sarcoma, while it may be found at any age is most common during the periods from birth to the age of 40 years. Carcinoma, on the other hand is seen most often after the age of 40. Is extremely rare in



Fig. 4 (round cell sarcoma of the upper end of the humerus of) at detection

less invasive and the roentgenogram present the appearance of some limitation (especially in the medullary canal where a slightly denser area appears at the periphery of the growth. These tumors do not metastasize as readily as do the round cell sarcomata. They may be mistaken for osteomyelitis in their early stages. In general, all the diagnostic points of round cell sarcoma apply equally to spindle cell sarcoma.

Periosteal sarcoma originates in the periosteum as the name implies. A striking characteristic of this type of tumor is the method of bone production in which the new bone is laid down in strict perpendicular to the shaft. The deposit of new bone is entirely in the soft tissues and does not reach the bone proper (Fig. 3). The cortex may be destroyed later in the disease. These tumors are most often seen before 30 years of age and like all malignant tumors they are invasive in charac-



Fig. 5 Bone cyst of head of ulna showing expansion and thinning of cortex

ter. These tumors however may be simulated very closely by some benign types of bone pathology such as periosteal reproduction after trauma as by a blow on the tibia from a kick or severe fall. Dr. Bloodgood calls attention to the importance of the physical examination in these cases. Unlike sarcomata, the soft tissue is not indurated or swollen.

Fig
sin
shc
X-ray therapy

Syphilis also may simulate periosteal sarcoma but in syphilis the new bone is usually



FIG. 6. Myxoid osteosarcoma of the humerus.

SARCOMA

Bone sarcoma may be of the round cell or spindle cell type, periosteal or osteosarcomatous in character, primary or metastatic in origin. We place giant cell sarcoma in the class of benign tumors from the fact that it seldom destroys the cortex of the bone and never metastasizes, although it has all the other characteristics of a true sarcoma.

Round cell sarcoma is a very malignant lesion with the following characteristics. The tumor is medullary in origin, contains no new bone, but shows a marked destruction in all directions. It breaks through the cortex of the bone, and invasion of the soft tissue results. These tumors may be found anywhere in bone but are usually seen in the ends of the long bones. Round cell sarcoma

sarcoma approaching a joint but limited by the cartilage on the side of the ilium. At the lower portion of this growth the whole bone has been swept away by the extension of



FIG. 7. Osteosarcoma of the humerus. Compare with Figure 6.

the growth, but the articular side of the joint is not involved. Contrast this with Figure 2, which shows a tuberculous lesion of the sacro-iliac joint in which the destructive process has attacked the joint itself and has destroyed the cartilage on both sides. Round and spindle cell sarcomata and tuberculosis are the only purely destructive lesions of bone which are unaccompanied by any new-bone production. When this type of pathological lesion is found, we are usually able to determine whether the lesion is malignant or benign, but it is difficult to know whether the growth is a sarcoma or a carcinoma. But differential diagnosis is aided by the fact that a sarcoma of this type most often occurs before 30 years of age, while carcinomata are metastatic and occur later in life. A combination of the roentgenological findings with the history will, in most instances, lead to a correct diagnosis.

Spindle cell sarcoma presents most of the characteristics of round cell sarcoma, but is



Fig 4. Round cell sarcoma of the upper end of the humerus of a 9 year duration

less invasive and the roentgenogram presents the appearance of some limitation especially in the medullary canal where a lightly denser area appears at the periphery of the growth. These tumors do not metastasize as readily as do the round cell sarcomata. They may be mistaken for osteomyelitis in their early stages. In general all the diagnostic points of round cell sarcoma apply equally to spindle cell sarcoma.

Periosteal sarcoma originates in the periosteum.

It is laid down in struts, perpendicular to the shaft. The deposit of new bone is entirely in the soft tissues and does not reach the bone proper (Fig 3). The cortex may be destroyed later in the disease. These tumors are most often seen before 30 years of age, and like all malignant tumors they are invasive in charac-



Fig 5. Bone cyst of head of femur showing expansion and thinning of cortex

ter. These tumors however may be simulated very closely by some benign types of bone pathology such as periosteal reproduction after trauma as by a blow on the tibia from a kick or severe fall. Dr Bloodgood calls attention to the importance of the physical examination in these cases. Unlike sarcomata, the soft tissue is not indurated or swollen but is freely movable.

It

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Syphilis also may simulate periosteal sarcoma, but in syphilis the new bone is usually



Fig. 5. Bone cyst of head of humerus with pathological fracture.

laid down parallel to the shaft and if the characteristic lace work formation is also present no mistake should be made (Fig. 6).

Osteosarcoma: usually cortical in origin. Bone production is pronounced and in periosteal sarcoma the new bone is deposited in striae perpendicular to the shaft but unlike the latter in osteosarcoma, the new

determined to a considerable amount of new bone formation the more malignant the type the more rapid the growth and in consequence the more limited the bone formation.

the new bone formation and the picture of invasion are the most important points in diagnosis.

Exostosis or osteoma need not be confused with sarcoma as the former presents a definite outline with no semblance of invasion. Early

may all have to be ruled out. Osteomyelitis is usually accompanied by pain, while an initial chill with the clinical history of an acute infection and later redness and swelling of the soft parts establish the diagnosis. Myelomata and cysts expand the cortex, show no new-bone production and are quite regular in their outline. Their growth is slow as compared with the rather rapid development and usual early destruction of the cortex which are characteristic of osteosarcoma. Myelomata are multiple lesions. However there is a type of osteosarcoma which arises from the periosteum and shows little involvement of the cortex, but it surrounds the bone presenting the appearance of an invasive tumor interrupted with areas of cartilage and bone.

CARCINOMA

Bone carcinoma is always metastatic and is medullary in origin. Most often it is seen at the middle of the bone at the point of entrance of the nutrient foramen. There is no bone production, only bone destruction. For this reason carcinoma may be confused with tuberculosis which also destroys bone without bone production, except when found in the shaft of the bone there being the only

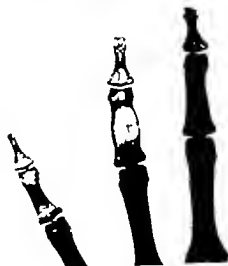


Fig. 6. Fibrosarcoma of shaft of femur.

two bone lesions of the pure destructive type. Tuberculosis however almost always involves a joint usually having its origin in the cancellous end of the bone and rapidly extending to the joint. When it is found in the shaft of bone it has all the characteristics of osteomyelitis. Carcinoma on the other hand never involves a joint. This fact adds materially in the diagnosis. The cortex is swept away without any attempt at expansion. The tumor extends equally in all directions. Carcinoma of bone is almost never found below the elbow or knees and is essentially a disease of the later period of life. It is also the most common type of bone tumor found in the female sex after 40 years of age. This latter point aids us in the differential diagnosis between carcinoma and round cell sarcoma the latter of which may be primary and is found at any age.



Fig. 13. Osteoma of fifth metacarpus

MYELOMA

Myelomata are true bone tumors and occur simultaneously at different locations in the osseous system. They are always medullary in origin. Two cases seen — postmortem — by MacCallum showed elevation of the cortex, erosion and protrusion of the growths. On roentgen examination these tumors should give first the appearance of expansion and later of destruction of the cortex. Pathological fractures and atrophy of the surrounding bone often result from these lesions. There is no blood picture which is characteristic of these lesions but Bence-Jones bodies are always present in the urine. This latter finding together with the multiple lesions and the absence of metastases renders possible the diagnosis of this type of bone tumor.

BENIGN TUMORS

Giant cell sarcoma is a benign tumor usually medullary in origin. It does not produce new bone in its growth, but shows marked bone destruction. The cortex is intact but is expanded. The origin usually is in the medullary canal but may be periosteal in which case the growth is covered with a thin layer of bone. The tumor apparently grows equally in all directions and is usually found in the end of the long bones (Fig. 8). They are usually found after middle life. These



Fig. 14. Osteoma of femur with condyles on opposite side

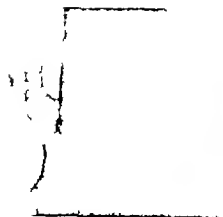


FIG. 4. Lesion of the distal end of femur.

tumor do not metastasize but are single lesions, although they have a multilocular appearance and must be differentiated from bone cysts and fibromata.

Bone cysts are medullary in origin and produce marked bone destruction. They tend to extend up and down the medullary canal expanding the cortex and at the same time thinning it out so that they present a cylindrical contour and often cause pathological fracture (Fig. 9). According to my experience bone cysts are always single, that is, only one bone of the body is involved. They are usually multilocular, however, and found in the end of long bones. These tumors occur in early life. Figure 10 is an illustration of a bone cyst with pathological fracture.

Fibromata are rare. They destroy bone are medullary in origin and occur as single tumors. They thin out the cortex but do not destroy it. No new bone is formed and the cortex does not expand. They show one single area of destruction and are not multilocular as bone cysts (Fig. 11).

Chondro-osteoma and *osteochondroma*, as the names signify, present either a preponderance of cartilage over bone or of bone over cartilage. These tumors are either medullary or cortical in origin. They produce bone destruction with expansion of the cortex so that a cylindrical tumor results. They are usually multiple and are probably the result of the latent growth of bits of cartilage left in the bone during its development. Patho-



FIG. 5. Osteoma humeri.

logical fractures are common. Both bone destruction and bone production are present. These tumors are definitely limited and are readily diagnosed from a roentgenogram as benign lesions.

Osteomata are cortical in origin and show marked bone production without bone destruction. They are simply lawless growths of bone which sometimes contain bits of cartilage which on the roentgenogram appear as areas of lesser density. They extend directly from the shaft or the body of the bone and may be found anywhere. They do not invade the tissues but push them aside to make room for their growth (Figs. 12 and 13).

Exostoses are bony growths from the cortex extending out from the body of the bone and pointing away from the nearest epiphysis. They are long and narrow and may have an osteoma on the end (Figs. 13 and 14). They are benign in character and offer little difficulty in diagnosis.

Ossifying hamatomata are cortical in origin and are not connected with the bone. They show calcification which presents the appearance of new bone in the tissue. The strands are laid down parallel to the shaft of the bone. This lesion is not a tumor but may have to be considered in making a differ-

enthal diagnosis. The condition is the result of an injury with hemorrhage beneath the periosteum which limits the outline.

Musculus ossificans is a lesion in which new bone is present in the muscle where it is deposited parallel to the shaft of the bone (Fig. 15). It is easily differentiated from bone tumors. This lesion as has been stated by Sir Robert Jones is usually due to trauma as the result of which bits of periosteum have been torn off in an avulsion fracture and have later produced new bone in the muscle.

TUBERCULOSIS

Tuberculosis of bone: usually of joint origin, if not it is a definite osteomyelitis. Destruction of bone without bone production is the characteristic appearance. As we have stated above the cartilage is attacked and both sides of the joint are involved, tuberculosis thus presenting a picture the opposite of that found in carcinoma or in round cell and spindle cell sarcoma. The cortex of the bone is swept away which is not the case with the benign tumors of bone in which only bone destruction is present.

There is however one type of tuberculosis to which careful consideration must be given and that is *caries sicca*. This is a form of tuberculosis of the joints occurring after 40 year of age and the characteristic of which

is marked atrophy of the bone and soft tissues about the joint, the areas of destruc-

tion there is present no swelling haziness or fluid.

SYPHILIS AND OTHER TYPES OF OSTEOMYELITIS

These conditions show marked periosteitis extending parallel to the shaft of the bone. In syphilis this may appear as the typical lace-work periosteitis which is pathognomonic of lues. The cortex may be broken through at several points. The lesion usually extends along the bone separating islands of healthy bone (Fig. 6). Sequestration is present in advanced cases. These points with the history of the case aid much in diagnosis. The Wassermann reaction is often negative in cases of bone syphilis, so that it cannot be relied on for diagnosis. If surgical intervention has destroyed bone or disturbed periosteum this whole plan of diagnosis becomes useless.

It is my hope that these few classifications and grouping of pathological findings as used in the section of roentgenology in the Cleveland Clinic may be of some aid in the diagnosis of bone tumors.

EMPHYSEMA OF THE SCROTUM THE RESULT OF DIVERTICULITIS OF THE SIGMOID WITH PERFORATION

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EXTRAVASATION of urine into the subcutaneous tissues of the perineum and scrotum is so often seen in traumatic surgery that it occasions little comment

quotes Verneuil as having made some observations on the latter condition and divides it into two types: first, gas distention by air from wounds adjacent to the scrotum or connected with distant wounds communicating with the air passages, and second, gas distention due to the invasion of the tissues by gas-forming organisms; this type is obviously much more serious and more often fatal than the first type.

The urinary extravasations follow a very definite route owing to the arrangement of the fascial planes in the perineum through which the urethra passes. Generally in cases in which the urine infiltrates the tissues as a result of direct trauma applied to the perineum the urethra is driven upward against the pubic arch and lacerated. The bulbospongiosus portion is the usual point of injury and the relation of the rupture to the triangular ligament determines the course of the extravasation. This urogenital diaphragm, the base of which enters the central tendon of the perineum and the lateral attachments of which are the ramus of the ischium and pubis, is continuous with both the superficial perineal fascia and the deeper pelvic layer. Should this trauma rupture the urethra then posterior to the ligament the extravasation must necessarily be backward and downward while a break in front directs the course forward and upward infiltrating the tissues of the anterior part of the perineum and scrotum and even extending well up on the abdomen. That this usual route was followed in our case seems logical despite the fact that there was a communication between the sigmoid flexure of the colon and the urinary bladder as opera-

tion verified. The patient was aware of having passed gas by the urethra, once several weeks before examination in the Clinic and once the night before operation.

Owing to peculiar anatomic arrangements it seemed highly improbable that gas had made its way into the bladder and thence into the subcutaneous tissues of the scrotum that

emerge in front of the triangular ligament and infiltrate the adjacent subcutaneous tissues, seems the obvious deduction.

REPORT OF CASE

CASE 1376117. Dr. T. L. A., age 45, registered at the Clinic November 11, 1911. He complained

to urinate was at the end of day. After this the attacks were intermittent for 8 months. He did not have a recurrence for about 2 years, when the

sort on defecation. Pain and sense of pressure

the urine although constantly alert for one or both, and his previous history was entirely negative to any genito-urinary disturbance.

The patient's general physical examination was practically negative. His general appearance was



Fig. Diverticula of the sigmoid bow the mass, which is attached to the lateral all of the bladder. The loop of the ileum is adherent. There is fistulous opening between the bladder and sigmoid.

that of robust man not accustomed to much physical exercise. He weighed 203 pounds, his normal weight was 155. The systolic blood pressure was 22 diastolic 80. The pulse was 90 and the temperature 99.4. The specific gravity of the urine was 1.03, the reaction acid, albumin red blood cells and pus 3. The combined hematocrit

15. It was found that the mass was producing an intermittent fistula. Malignancy was considered as a remote possibility (Fig. 1).

Operation. November 9, 1921, under ether anesthesia, the abdomen was explored through a low left rectus incision. A mass was found

adherent to the mass it was not removed for fear that it communicated with the sigmoid and a

but at a noticeable rate. Within 2 hours it was

shown throughout its wall was thus using an additional argument against an initial resection. Consequently a preliminary colostomy was made

the physical appearance and feel of the tissues were characteristic. The fact that fistula was known to exist between the bladder and bowel did not explain the condition since it offered no anatomical method of bringing about an emphysema. There was no extension on the abdomen, which, however, was considerably bloated with gas and on high

ation open.

Postoperative course. The immediate convalescence was uneventful. The patient complained very little of gas pain and altogether was not very uncomfortable. The colostomy had not been opened. On the eighth day the patient complained of quite severe gas pain and suddenly in the afternoon noticed that his scrotum began to swell painfully.

was exceedingly slow in returning to normal 2 weeks elapsed before its reduction was complete. Except for a somewhat aggravated cystitis, the patient was none the worse for the unusual complication. He returned home with the open colostomy and with the advice to wait several months before having the second stage of his operation carried out.

POSTTRANSFUSION REACTIONS

ALTERATIONS IN BLOOD AFTER ETHER ANESTHESIA AND AFTER BLOOD TRANSFUSION

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 From the Surgical Service of the Royal Victoria Hospital and the Psychological Department of McGill University

THE history of blood transfusion previous to the present era which really began with Crile's epoch making work in 1906 (10) consists of several short periods during which the usefulness of transfusion as a therapeutic measure was enthusiastically endorsed and long intermissions during which it was considered a hazardous procedure. Based upon a number of fortunately successful cases and upon attractive but for the most part erroneous theories the legitimate importance of blood transfusion took on the aspect of a cure-all and a life-saving device in all serious diseases and therefore came to be used in as great if not a greater variety of conditions, as may be found in a modern list of indications. Indeed its sphere of usefulness was extended to the soul, for Cardanus in 1556 advocated that people hopelessly immoral should be transfused with blood of those strongly moral (Jones 18). A comparison between the practice of transfusion before the present era and its practice with modern methods can only excite wonder and a certain degree of admiration for the courage and skill of our forebears, who in

Lindeman and Unger (44) methods and their modifications. Landolt in 1875 was the first to discover that the dangerous results following transfusion were due to the fact that the fresh serum of an animal of one species could dissolve the red cells from an animal of another species. The researches of Landsteiner (21), Janáky (17), Hektoen (16), Ottenberg (31) and Moss (28) explained the nature of the dangerous, often lethal, post transfusion reactions and made it possible to test for the compatibility of donor's and recipient's bloods previous to transfusion. Furthermore fair and rational estimation of results obtained from transfusion in various conditions has eliminated many cases in which the measure is useless and has thus diminished the number of failures. The true indications for transfusion have thus been placed in greater relief and hence its usefulness is now better appreciated.

Blood transfusion must therefore, remain permanently as a therapeutic measure of highest value and very great importance.

Whereas the technique of transfusion is now very efficient and its sphere of usefulness is

but these deficiencies in their knowledge may be taken to account for both their courage and for the failures which at the end of each successful period stamped transfusion as a dangerous operation and eliminated it from practical therapeutics, until in some future generation interest in it was again revived and success enthusiasm failure and resultant condemnation were again repeated.

The investigations and clinical applications of blood transfusion reported by Crile (10 and 11) excited much scientific interest throughout the entire world. Since then the technique has been greatly perfected by the introduction of the Lewisohn (13)

for in spite of pretransfusion tests for compatibility of donor's and recipient's bloods,

been properly matched and found suitable.

ALTERATIONS IN RECIPIENT'S BLOOD AFTER ETHER ANESTHESIA

The attention of one of us (Levine) was attracted to a hitherto unreported cause of reaction, by a number of experiences with

transfusion for postoperative replacement of blood. In such cases, if the possible necessity of transfusion is foreseen previous to the operation, a suitable donor may be chosen and held in readiness to be used at any time during or after the operation. If the necessity of transfusion is perceived only

carcinoma of the esophagus. Anesthesia was begun with gas and oxygen and continued with

nearest relative as a donor and proceed to perform the transfusion without previous

of emergency

CASE 1: In September 1919, at the Royal Victoria Hospital, it was found necessary to do a

withdrawn from the patient and centrifugalized. The serum, which had a pinkish tinge—probably

present in the serum obtained previous to the operation. The test was repeated and marked agglutination of donor's cells by recipient's serum occurred within 15 minutes after the test had been set up. Twenty-four hours later the test was repeated: a clear straw-colored serum was obtained and there was no agglutination. No transfusion was done in this case.

The cases of transfusion for postoperative replacement of blood which we were able to find in the literature were not reported with the necessary details of the duration of anesthesia, the color of the centrifugalized serum and the results of tests before and after anesthesia, so that they cannot be used for the purposes of this discussion.

The observations made on these three cases point to a definite phenomenon, namely that a long operation in which ether is used as

one but disappears during the first 24 hours after the operation, i. e. just about the time when the patient has recovered from the effects of the ether anesthesia.

Several hypotheses may be considered in attempting to explain the nature and cause of these phenomena. It may be possible that lipoids liberated from the tissues and taken up by the blood are responsible for the agglutination immediately after prolonged anesthesia, and that when these lipoids have been excreted from the blood the serum again behaves as before the operation. Another possibility is, that the organic products of surgical shock may be responsible for the temporary alteration in the haemagglutination of the blood. Then, again, the ether that is present in the blood, by its own action

Twenty-four hours later the test was again done with fresh serum (which lacked the pinkish tinge) and no agglutination occurred. Eleven days after the

or by substances or effects which it produces in the blood may be the cause of the change. This latter hypothesis is supported by the presence of a pinkish tinge in the serum obtained by centrifugalizing blood with drawn immediately after prolonged ether anesthesia—this pinkish tinge being due to hemolysis of red cells most probably caused by the ether present in the blood.

Furthermore Professor Oertel has suggested to us that ether being a lipoid solvent the alteration in the colloidal state of the blood which it produces is most probably the cause of the changed haemoagglutinin and haemolytic phenomena which are themselves also colloidal in nature. Professor Brœre corroborates this opinion from his experience with the Wassermann reaction. He has observed that the presence in the blood of substances which alter its colloidal state interfere with the reaction. Thus blood with drawn several hours after a meal, and containing products of digestion is unreliable for the purposes of the Wassermann test. Indeed he has found that if blood has been taken during or immediately after ether anesthesia the proper results are not obtained.

A more complete discussion of the nature and cause of these phenomena we postpone until we will have completed the investigations that we are carrying on. Our observations have, however, taught us a valuable practical lesson, namely, that in practicing postoperative transfusion for replacement of blood especially in cases following prolonged ether anesthesia it is essential to match the patient's serum with the donor's red cells and *vice versa* after the operation and that it is necessary to wait at least 24 hours before taking the sample of blood for serum from the patient. This necessitates postponing the transfusion for at least 24 hours during which time the patient may be benefited by glucose or saline injections.

ALTERATIONS IN BLOOD AFTER TRANSFUSION

Certain conditions such as the anemias, haemophilia, purpura, leukaemia, and others

cluded that multiple transfusions from a given donor to a given recipient caused the development in the latter a blood of specific agglutinins and haemolysis against the do-

ed out the danger of posttransfusion reaction following the second or subsequent transfusions from a given donor to a given recipient even when the test previous to the first transfusion proved the bloods to be compatible

Doing tests again if transfusion is repeated even if the same donor is used. They reported that they had "seen several instances in which a patient developed new agglutinative and haemolytic powers toward the blood cells of a donor to whom he had not originally been agglutinative or haemolytic. In one of these cases a young man suffering from haemophilia a first transfusion of 50 cubic centimeters by the syringe method was followed by no reaction whatever and the tests showed absence of haemolysis or agglutination. A month later an identically similar transfusion of the same amount of blood was followed by an immediate reaction consisting of partial collapse, nausea and vomiting, generalized urticaria, violent headache and haematuria. Blood obtained from patient and donor a few days after this occurrence showed that the serum of the patient was now strongly agglutinative to the cells of the donor. It was not determined whether the agglutinin present was due to the patient having changed his group (a hitherto undescribed occurrence) or to the development of a new immune iso-agglutinin."

In 1917 Minot and Lee (27) reported three

followed by a marked reaction which hastened death. The donors and recipients in all cases belonged to the same groups. "Another very striking example was reported by Thalheimer (43) in the case of a boy aged 6 years suffering from purpura.

was discharged in good condition about 2 weeks after the transfusion.

CASE 2: M. K. female age 31 admitted for

the bloods a second transfusion was given, when 190 cubic centimeters of citrated blood were injected. The patient developed tingling of face, legs and feet, then burning of feet. There followed

signs occurred. She was operated upon on September

beginning of the reaction the patient was in fairly good condition and was returned to his room

the third day after transfusion. At no time were red blood cells found in the urine.

Our attention to this phenomenon of a reaction after the second transfusion from a given donor to a given recipient, was first attracted by the following two cases in the series of transfusions performed at the Royal Victoria Hospital.

CASE 1: Mr. A. age 45, suffering from pernicious anemia, was given 500 cubic centimeters blood

but continuous hemorrhage from rectum and vagina and blood was found in a catheter specimen of urine. The very acute symptoms, namely the

from five to six times a day to once a day but it was not until October 30 seventeen days after the

103 F. 100 with some anemias in the mouth became edematous, breathing was labored and the pulse small and thready. A specimen of

until it became hardly noticeable when the patient

On the other hand it must be borne in mind that not every transfusion in which a given donor is used two or more times for a given recipient is necessarily accompanied by a reaction. Butsch and Ashby (8) report 36 cases in which the same donor was used twice for the same recipient in 16 of which no reaction followed either transfusion, while in 7 only one transfusion was accompanied

by reaction, and in the remaining 3 a reaction followed both transfusions. McLeney, Stearns, Forttine and Ferry (48) however in a review of 280 transfusions, concluded that subsequent donation of blood by a given donor to a given recipient tends to increase the frequency of reaction in direct proportion to the number of transfusions. Thus the percentage of reactions of various degrees in their series was as follows:

| | Percentage |
|------------------------------|------------|
| After the first transfusion | 57 |
| After the second transfusion | 70 |
| After the third transfusion | 73 |
| After the fourth transfusion | 91 |

The latter authors, from a study of the same series of 280 transfusions, pointed out the interesting fact, that repeated transfusions, from several donors to a given recipient also tend to increase the frequency of reaction in this recipient. Reactions of various degrees occurred in the following percentages:

| | Percentage |
|-----------------------------------|------------|
| After the first transfusion | 60 |
| After the second transfusion | 59 |
| After the third transfusion | 67 |
| After the fourth transfusion | 68 |
| After more than four transfusions | 74 |

McLure and Dunn (25) in an excellent analysis of 190 transfusions found that "in the patients for whom many transfusions have had to be done, it became more and more difficult to find donors whose blood would match that of the patient. A donor may match perfectly early in the series of transfusions and later be found unsuitable. It is therefore most important that the bloods be matched before each transfusion." Several years later Howcock corroborated

are altered as the result of the addition of donor's blood. What the nature of this alteration is, remains an open question—a problem for study.

There is a very close resemblance between the symptoms and signs of a reaction following a second transfusion from the same donor and the symptoms and signs of anaphylactic shock, as is very well illustrated by the four cases cited above. This fact has led all observers to suggest that the posttransfusion reaction may be anaphylactic, the first transfusion being held responsible for the causation of a hypersusceptibility of the recipient's serum against the donor's cells. This however does not make the explanation much clearer for the phenomenon of anaphylaxis is itself very inadequately understood, and explanations of its exact nature are as yet at the stage of hypotheses.

It is important to know whether the reaction is associated with any change in the group of the recipient. All those who do transfusions can contribute to the elucidation of this point by testing the recipient's blood before and after transfusion, by both the direct and the indirect methods. Recently we found that after a donor had been used twice for the same recipient (although the recipient remained in the same group) Moss (11) her serum caused slight agglutination of the donor's cells, whereas in previously performed direct tests no agglutination was observed. We do not attach any great importance to this single observation, since a large series of data would be necessary to allow of any defi-

nitely there comes a time when suitable donors are no longer to be found and when this point is reached no further attempt to transfuse these patients should be made."

All these observations together point to the definite phenomenon which must now be accepted:

"If a patient has received more than one transfusion, there comes a time when suitable donors are no longer to be found and when this point is reached no further attempt to transfuse these patients should be made."

TRANSFUSION REACTIONS

The possible influence of a particular donor on the frequency of reaction to whole blood

McLure and Dunn (25) in an excellent analysis of 190 transfusions found that "in the patients for whom many transfusions have had to be done, it became more and more difficult to find donors whose blood would match that of the patient. A donor may match perfectly early in the series of transfusions and later be found unsuitable. It is therefore most important that the bloods be matched before each transfusion." Several years later Howcock corroborated

gave fifteen transfusions caused only seven reactions (47 per cent). The largest number of donations made by one man was 36, and in his case there were 28 reactions (78 per cent). There is therefore considerable difference between donors in their tendency to produce reactions.

The relatively great frequency of milder degrees of posttransfusion reactions, consisting of a transitory rise in temperature often associated with chills, tingling etc. and occasionally slight hæmoglobinuria, raises the question as to whether these reactions are only milder degrees of those severe ones which follow definite incompatibilities between donor's and recipient's bloods, or whether they are due to independent causes, as for example deficiencies in technique. Influences of contact of donor's blood with the recipient's blood are also possible.

and Brittingham (13) and of Detsch and Ashby (8). It appears reasonable to include all reactions in one general category as regards their causation.

It appears, therefore, that the most logical path of investigation into the exact cause of posttransfusion reactions lies within the broad field of immunology.

CONCLUSIONS

Although the exact nature of the reactions and their causes leave much room for study the practical lessons to be learned from the above observations are quite definite and very valuable to the safe practice of transfusion.

1. The compatibility of the recipient's and donor's blood must be determined prior to each and every transfusion.

2. No transfusion must be done during or within 24 hours after prolonged ether anaesthesia even when the donor has been found suitable previous to the beginning of anaesthesia.

3. The test, the in group of donor and recipient and also the direct (Cocca 9) test to corroborate the

compatibility of the bloods, thus checking up one test by the other.

In a very recent article Robertson and Rous (39) conclude that in cases of repeated transfusion it is necessary to test for auto-agglutination in the recipient's blood, and also point out that serum separated at 37° C. contains more agglutinins than that separated at room temperature whereas agglutination is more marked at room temperature than at 37° C.

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VOMITING AND DISTENTION AFTER LAPAROTOMY LESSENER BY THE SUBSTITUTION OF RUBBER ENVELOP PADS FOR GAUZE

INFLUENCE OF ETHER MORPHINE AND RECTAL THERAPY

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THE primary object of this study was to find out what differences, if any in postoperative emesis and intestinal distention existed between laparotomized cases in which rubber envelop pads were used and those in which gauze pads were used.

The operations were intra-abdominal and with a few exceptions (namely appendectomies, intestinal resections, and ventral hernia) were performed upon the pelvic organs of the female. In many cases plastic work of the vaginal canal was done in combination with the abdominal work. The character of the operations was, therefore, practically the same. Simple appendectomies, when done through the McBurney or right rectus incision were not included for the reason that here little use was made of pads, and consequently but a limited amount of trauma was inflicted on the peritoneum of the intestines.

It was originally proposed to study 800 laparotomized cases. In 400 of these rubber envelop pads were used. In 400 gauze pads were used. The former cases were operated on between November 26 1917 and January 13 1920 and the latter between December 20 1917 and July 15 1920. But after completing the study in greater part it was discovered that of the three operators who were credited with the use of gauze pads, one not infrequently used rubber pads, and as it could not be determined in which cases the gauze pads were used it was necessary to

The study was limited to the first 3 days of convalescence, because cathartics, which are usually administered on the fourth day are not infrequently responsible for emesis, and because distention from operative causes, unless the result of sepsis, seldom extends beyond the third day.

The operative technique of one group of cases differs radically from that of the other in one particular only namely in the character of the abdominal pads used.

The postoperative care differed in several minor features, namely in regard to rectal therapy and the degree of tension of the abdominal binder. Pre-operative care was practically the same in all cases with respect to the amount of morphine and atropine administered before etherization.

The group in which rubber envelop pads

groups will be divided according to days. Classified according to this plan it was found that the cases fall into eight divisions.

The first division includes those cases which did not vomit at any time during the first 3 days of convalescence.

The second division includes those cases which vomited the first day only (that is the day of operation).

The third division includes those cases which vomited the first and second days only.

The fourth division includes those cases which vomited during the first second and third days.

In action and influence of rubber and gauze used intra-abdominally with respect to postoperative emesis and distention. It was necessary to exclude all cases of general septic peritonitis as emesis and distention are almost invariable sequelae to this pathology.

.....
only

TABLE I—GROUP 1 NON LAPAROTOMIZED
300 CASES

| Division | Emesis record Day of convalescence | | | No. of cases in each division | Percentage in each division |
|----------|--|-----|-----|----------------------------------|--------------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 80 | 26.7 |
| 2 | x | 0 | 0 | 208 | 69.3 |
| 3 | 0 | x | 0 | 5 | 1.7 |
| 4 | 0 | 0 | x | 3 | 1.0 |
| 5 | 0 | 0 | 0 | 0 | 0 |
| 6 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 | 1 | .7 |
| 8 | 0 | 0 | 0 | 1 | .3 |
| Total | | | | 300 | 100 |

Indicates the day or days on which one or more emesis occurred

The seventh division includes those cases which vomited during the second day only

The eighth division includes those cases which vomited during the third day only

It was a simple matter to determine the frequency and duration of emesis in groups 2 and 3 but an analysis of them, with the object of determining why there were such great variations in emesis with respect to days and

hours were known. Therefore, it became necessary to study another group of cases, those in which all causative factors arising from peritoneal invasion were eliminated. This group will be known as group 1: the non-laparotomized cases (Table I).

Of the 300 cases constituting group 1, 80 or 26.7 per cent did not vomit during the first 3 days of convalescence, 208 or 69.3 per cent, vomited during the first day only and 12 or 4 per cent vomited during and after the first day or only after the first day.

To facilitate the study of group 1, I have divided it into subgroups a and b. Subgroup a consists of those cases which were under the influence of ether more than 1 hour (Table II). Subgroup b consists of those cases which were under the influence of ether less than 1 hour (Table III). The former includes 100 cases with extreme limits of time—1 hour to 3 hours 10 minutes; the latter includes 200 cases with extreme limits—15 minutes to 1 hour.

An analysis of subgroup a with respect to the time of etherization, and the time limit of postoperative emesis shows

TABLE II—SUBGROUP a NON LAPAROTOMIZED CASES TIME OF OPERATION MORE THAN ONE HOUR 200 CASES

| Division | Emesis record Day of convalescence | | | No. of cases in each division | Minutes | Percentage in each division |
|----------|--|-----|-----|----------------------------------|---------|--------------------------------|
| | 1st | 2nd | 3rd | | | |
| 1 | 0 | 0 | 0 | 50 | 100 | 25.0 |
| 2 | x | 0 | 0 | 140 | 95 | 70.0 |
| 3 | x | 0 | 0 | 5 | — | .5 |
| 4 | x | x | x | 5 | — | .5 |
| 5 | 0 | 0 | 0 | 1 | — | .5 |
| 6 | 0 | x | 0 | 0 | 103 | — |
| 7 | 0 | 0 | 0 | 1 | — | .5 |
| 8 | 0 | 0 | x | 1 | — | .5 |
| Total | | | | 200 | | 100.0 |

Indicates the day or days on which emesis occurred one or more times

The average time of etherization in the 50 cases constituting division 1 was 1 hour 40 minutes.

The average time of etherization in the 140 cases constituting division 2 was 1 hour 35 minutes.

The average time of etherization in the 10 cases constituting divisions 3, 4, 5, 6, 7 and 8 was 1 hour 43 minutes.

A further analysis shows that of the 50 cases constituting division 1, etherization lasted 2 hours or more in 12 cases with an average time of 2 hours, 24 minutes, and that in the remaining 38 cases of this division etherization lasted between 1 and 2 hours with an average time of 1 hour 22 minutes.

That of the 140 cases constituting division 2, etherization lasted 2 hours or more in 30 cases with an average time of 2 hours 10 minutes, and that in the remaining 110 cases of this division etherization lasted between 1 and 2 hours with an average time of 1 hour 24 minutes.

This analysis shows—

First, that the average time of etherization in the cases which did not vomit at any time was not shorter but 5 minutes longer than in the cases which did vomit during the first 24 hours only.

Second, that the average time in the 12 cases under ether 2 hours or more, which did not vomit, was 14 minutes longer than that of the 30 cases under ether 2 hours or more but which did vomit during the first 24 hours.

Third, that the average time of the remaining 38 cases etherized between 1 and 2 hours

TABLE III—SUBGROUP *b* NON-LAPAROTOMIZED CASES TIME OF OPERATION LESS THAN ONE HOUR 100 CASES

| Division | Emesis record Day of operation not and and | | | No. of cases in each division | Minutes | Percentage in each division |
|----------|---|---|---|----------------------------------|---------|-----------------------------------|
| 1 | 0 | 0 | 0 | 30 | 27 | 30.0 |
| 2 | 0 | 0 | 0 | 61 | 30 | 61.0 |
| 3 | x | | 0 | 0 | — | — |
| 4 | x | | 0 | 0 | — | — |
| 5 | x | 0 | | 1 | — | — |
| 6 | 0 | x | x | 0 | 27 | 0.0 |
| 7 | 0 | x | 0 | 0 | — | — |
| 8 | 0 | 0 | x | 0 | — | — |
| Total | | | | 100 | | 100.0 |

Indicates the day or days on which one or more emesis occurred

which did not vomit was 2 minutes less than that of the 10 cases etherized between the same hours but which did vomit.

As there are only 10 cases in the remaining divisions which vomited irregularly with regard to days, it is difficult to make a satisfactory comparative study of them. We find however that the emesis which occurred in these cases after the first day was the result, in the majority of cases, of such causes as food and medicine administered immediately before emesis.

Two of these cases, therefore might be classified in division 1 eight of them might be classified in division 2. Under this readjustment the average time of division 1 would be 1 hour 37 minutes and that of division 2 1 hour 36 minutes.

These findings would suggest that the element of time as a causative factor in post operative emesis is not so important as we have heretofore been led to believe.

An analysis of subgroup *b* with respect to the time of etherization and the time limit of postoperative emesis shows:

The average time of etherization in the 30 cases constituting division 1 was 27 minutes.

The average time of etherization in the 68 cases constituting division 2 was 30 minutes.

The average time of the remaining 2 cases constituting divisions 4 and 7 was 22 minutes.

A further analysis shows—

That of the 30 cases which constituted division 1 etherization lasted from 30 to 55 minutes in 13 cases, with an average time of 39 minutes, and that in the remaining 17 cases



Fig. Group 1—No laparotomized cases

of this division etherization lasted less than 30 minutes.

That of the 68 cases which constitute division 2 etherization lasted in 38 cases, from 30 to 57 minutes with an average time of 37 minutes. In the remaining 30 cases of this division, etherization lasted less than 30 minutes, with an average time of 20 minutes.

This analysis shows—

which did vomit during the first day.

Second that the average time in the 13 cases under ether between 30 and 55 minutes, which did not vomit was 2 minutes longer than that in the 38 cases under ether the same length of time but which did vomit during the first day.

Third that the average time of the remaining 17 cases etherized less than the 30 minutes, which did not vomit, was only 1 minute less than that of the 30 cases etherized the same length of time but which did vomit during the first day.

Of the two cases which vomited irregularly with regard to days, one vomited on each of the 3 days and was etherized 30 minutes. The other vomited on the second day only and was etherized 15 minutes. Accidental

causes were determined immediately preceding the emesis which occurred in these cases on the second and third days. The first case might, therefore, be classified with division 2 and the second case with division 1 but as these cases constitute so small a part of the entire group and as the length of their respective etherization could alter but little the percentage of the divisions they might be disregarded entirely.

It would therefore, seem that regarding the relationship between the duration of etherization and frequency or infrequency of emesis there is no fixed rule.

TO WHAT EXTENT DOES MORPHINE ADMINISTERED HYPODERMICALLY AFTER OPERATION ENTER AS A CAUSATIVE FACTOR IN POSTOPERATIVE EMESIS?

An analysis of the divisions in group 1—non-laparotomized cases—shows the following.

Of the 80 cases with no vomiting we find that 40 received morphine during the first day as no emesis occurred on this day these 40 cases which received morphine acted with respect to emesis, as did the remaining 40 cases which did not receive morphine. The total amount of morphine given these 40 cases was a fraction less than 16 grains or an average of 0.4 of a grain.

On the second day we find that 26 cases received morphine. As

received no morphine. The total amount of morphine given these 26 cases was a fraction less than 8 grains or an average of 0.3 of a grain.

On the third day we find that 10 patients received morphine. As no emesis occurred on this day these 10 patients acted with respect to emesis, as did the remaining 69 cases in which no morphine was administered. The total amount of morphine given these 10 patients was 3 grains or an average of 0.3 of a grain.

Of the 208 cases vomiting on day of operation (division 2) we find that 134 cases received morphine during the first day. As

emesis occurred on the first day in all cases of this division the remaining 74 cases vomited independently of the possible influence of morphine acting as a causative factor in emesis. Of the 134 cases which received morphine 53 vomited before its administration 49 vomited after and 32 vomited before and after. The total amount of morphine given these 134 cases was 52 grains or an average of 0.4 of a grain.

On the second day we find that 79 patients received morphine. As no emesis occurred on the second day of this division these 79 cases which received morphine acted in no way differently with respect to emesis than did the remaining 129 cases which received no morphine. The total amount of morphine administered to these 79 cases was 29 grains or an average of 0.3 of a grain.

On the third day we find that 40 patients received morphine. As no emesis occurred on the third day of this division, these 40 cases acted in no way differently with respect to emesis than did the remaining 168 cases which received no morphine. The total amount of morphine administered to the 40 cases was 11 grains or an average of 0.3 of a grain.

It would therefore, appear from this analysis that of the 174 cases not vomiting at all or

ministration namely 49 and those cases which vomited before and after namely 32 totalling 81 could have been influenced by morphine with respect to emesis.

As the average amount of morphine (i.e., 0.4 of a grain) administered to these 81 cases which vomited was no greater but identical, to the average amount given to the 93 cases which did vomit and as the average amount (i.e. 0.3 of a grain) administered on the second day to the 105 cases and on the third day to the 50 cases were identical it would seem reasonable to conclude that the amount of morphine administered hypodermically after operation exerted but a minor influence if any as a factor in postoperative emesis.

Of the 12 cases constituting 5 of the remaining 6 divisions we find that 9 cases received morphine during the first day and three did



Fig. 2. Group 2. Cases in which rubber envelop pads were used.

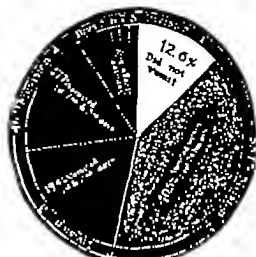


Fig. 3. Group 3. Cases in which gauze pads were used.

TABLE V—GROUP 2. LAPAROTOMY WITH RUBBER ENVELOP PADS. 400 CASES

| Devilness | Days since Day of operation | | | No. of cases in each de- viance | Percentage in each deviance |
|-----------|-----------------------------------|-----|-----|---------------------------------------|-----------------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 23 | 5.7 |
| 2 | 0 | 0 | 0 | 70 | 17.5 |
| 3 | x | x | 0 | 30 | 7.5 |
| 4 | x | | 1 | 20 | 5.0 |
| 5 | x | | | 4 | 1.0 |
| 6 | 0 | | | 6 | 1.5 |
| 7 | | | 0 | 0 | 0 |
| 8 | 0 | 0 | 1 | 1 | .25 |
| Total | | | | 400 | 100.0 |

Indicates the day or days on which one or more attacks occurred.

TABLE VI—GROUP 3. LAPAROTOMIZED CASES WITH GAUZE. 366 CASES

| Deviance | Days since Day of operation | | | No. of cases in each de- viance | Percentage in each deviance |
|----------|-----------------------------------|-----|-----|---------------------------------------|-----------------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 46 | 12.6 |
| 2 | 0 | 0 | 0 | 148 | 40.5 |
| 3 | | | | 72 | 19.7 |
| 4 | x | x | | 65 | 17.8 |
| 5 | | | | 9 | 2.5 |
| 6 | 0 | | | 5 | 1.4 |
| 7 | 0 | | | 0 | 0 |
| 8 | 0 | | | 6 | 1.6 |
| Total | | | | 366 | 100.0 |

Indicates the day or days on which one or more attacks occurred.

is not traumatized is ether and the limit of its influence is 24 hours.

A COMPARATIVE STUDY OF THE 400 LAPAROTOMIZED CASES (GROUP 2) IN WHICH RUBBER ENVELOP PADS WERE USED AND THE 366 LAPAROTOMIZED CASES (GROUP 3) IN WHICH GAUZE WAS USED

EMESIS DURING FIRST THREE DAYS

An analysis of laparotomized cases in which rubber envelop pads were used—group 2—shows the following:

Of the 400 cases constituting group 2: 108 cases or 27 per cent, did not vomit during the first 3 days of convalescence; 179 cases,

or 44.7 per cent, vomited during the first day only; 50 cases or 12.5 per cent, vomited during the first and second days only; 29 cases, or 7.3 per cent, vomited on each of the 3 days; 14 cases or 3.5 per cent, vomited on the second and third days only; 10 cases, or 2.5 per cent, vomited on the second day only; and 4 cases or 1 per cent, vomited on the third day only.

An analysis of laparotomized cases in which gauze was used—Group 3—shows the following:



Fig. 4 Group 1. Four hundred cases of which 386 cases, or 96.5 per cent, did not distend, 14, or 3.5 per cent, did distend.

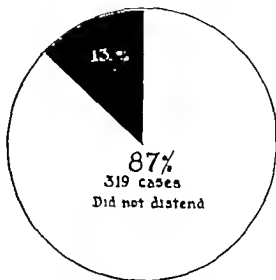


Fig. 5 Group 2. Three hundred sixty-six cases of which 319, or 87 per cent, did not distend and 47, or 13 per cent, did distend.

or 19.4 per cent, vomited during the first 3 days only, 65 cases, or 17.7 per cent vomited on each of the 3 days, 19 cases, or 5.2 per cent, vomited on the first and third days only, 5 cases, or 1.4 per cent vomited on the second and third days only, 6 cases, or 1.6 per cent vomited on the second day only and 6 cases, or 1.6 per cent, vomited on the third day only.

INTESTINAL DISTENTION

A comparative study of the two groups shows that in group 2 some form of distention occurred in 16 cases. Of these 4 were recorded as "distended" and 12 as "slightly distended." As 2 were recorded as "gastric distention" the number of cases of

on 3 successive days and 1 case distended on 3 successive days.

It may be of interest to note the difference of distention occurring in the corresponding divisions of the two groups as shown in table

TABLE VII.—DIFFERENCE OF DISTENTION

| Division | Group 1 | Percentage | Division | Group 2 | Percentage |
|----------|---------|------------|----------|---------|------------|
| 1 | 3 | 0 | 1 | 8 | 7 |
| 2 | 8 | | 2 | 8 | 7 |
| 3 | 0 | | 3 | 15 | 5 |
| 4 | 3 | | 4 | 30 | |
| 5 | 0 | | 5 | 5 | 0 |
| 6 | 0 | | 6 | 40 | 0 |
| 7 | 0 | | 7 | 23 | 0 |
| 8 | 0 | | 8 | 16 | |

Our interest centers in the comparative difference in the 4 first divisions of the 2 groups.

sive days

In group 3 there were 47 cases recorded as having had some form of distention, 33 of these were

con-

gastric distention. Therefore, the number of cases with intestinal distention in this group was 47, or 13 per cent. Seven cases distended

distention occurred as contrasted with 16.6 per cent in the corresponding divisions of group 3.

It will be noted that there is a marked increase in percentage between divisions 2 and 3 and 3 and 4 of each group and an equally

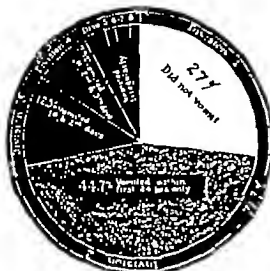


Fig. 2. Group 2. Cases in which back rubber envelop pads were used.

TABLE V.—GROUP 2. LAPAROTOMY WITH RUBBER ENVELOP PADS. 400 CASES.

| Days since operation | Number vomited | | No. of cases in each division | Percentage in each division |
|----------------------|----------------|---------|-------------------------------|-----------------------------|
| | 1st day | 2nd day | | |
| 1 | 0 | 0 | 08 | 27.0 |
| 2 | 2 | 0 | 79 | 44.7 |
| 3 | 2 | 0 | 50 | 12.5 |
| 4 | 7 | 2 | 29 | 7.3 |
| 5 | 0 | 0 | 14 | 3.5 |
| 6 | 0 | 2 | 6 | 1.5 |
| 7 | 0 | 2 | 10 | 2.5 |
| 8 | 0 | 0 | 4 | 0 |
| Total | | | 400 | 100.0 |

Indicates the day or days on which one or more vomits occurred.



Fig. 3. Group 3. Cases in which gauze pads were used.

TABLE VI.—GROUP 3. LAPAROTOMIZED CASES WITH GAUZE. 366 CASES.

| Days since operation | Number vomited | | No. of cases in each division | Percentage in each division |
|----------------------|----------------|---------|-------------------------------|-----------------------------|
| | 1st day | 2nd day | | |
| 1 | 0 | 0 | 40 | 10.9 |
| 2 | 2 | 0 | 125 | 34.1 |
| 3 | 2 | 2 | 72 | 19.7 |
| 4 | 2 | 2 | 64 | 17.5 |
| 5 | 0 | 2 | 10 | 2.7 |
| 6 | 2 | 2 | 5 | 1.4 |
| 7 | 0 | 0 | 6 | 1.6 |
| 8 | 0 | 0 | 6 | 1.6 |
| Total | | | 366 | 100.0 |

Indicates the day or days on which one or more vomits occurred.

is not traumatized is ether and the limit of its influence is 24 hours.

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EMESIS DURING FIRST THREE DAYS

Of the 400 cases constituting group 2, 108 cases, or 27 per cent, did not vomit during the first 3 days of convalescence; 179 cases

or 44.7 per cent vomited during the first day only; 50 cases, or 12.5 per cent vomited during the first and second days only; 29 cases,

cent, vomited on the second day only; and 4 cases, or 1 per cent vomited on the third day only.

An analysis of laparotomized cases in which gauze was used—Group 3—shows the following

— — — — — 6



Fig. 4. Group 1. Four hundred cases of which 96.5 per cent, or 386 cases, did not distend; 3.5 per cent, or 14, did distend.

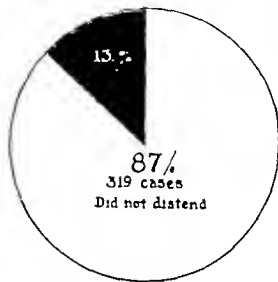


Fig. 5. Group 2. Three hundred sixty-six cases of which 87 per cent, or 319 cases, did not distend; 13 per cent, or 47, did distend.

or 19.4 per cent vomited during the first 2 days only; 65 cases or 17.7 per cent, vomited on each of the 3 days; 19 cases or 5.2 per cent vomited on the first and third days only; 5 cases, or 1.4 per cent vomited on the second and third days only; 6 cases or 1.6 per cent, vomited on the second day only; and 6 cases or 1.6 per cent, vomited on the third day only.

INTESTINAL DISTENTION

A comparative study of the two groups shows that in group 2 some form of distention occurred in 16 cases. Of these, 4 were recorded as "distended" and 12 as "slightly distended." As 2 were recorded as "gastric distention" the number of cases of

on 2 successive days, and 1 case distended on 3 successive days.

It may be of interest to note the difference of distention occurring in the corresponding divisions of the two groups as shown in table

TABLE VII.—DIFFERENCE OF DISTENTION

| Division | Group 1 | Percentage | Division | Group 2 | Percentage |
|----------|---------|------------|----------|---------|------------|
| 1 | | 3.6 | 1 | | 8.7 |
| 2 | | 8.0 | 2 | | 8.7 |
| 3 | | 3.0 | 3 | | 5.5 |
| 4 | | 0.0 | 4 | | 30.0 |
| 5 | | 0.0 | 5 | | 5.0 |
| 6 | | 0.0 | 6 | | 40.0 |
| 7 | | 0.0 | 7 | | 33.0 |
| 8 | | 0.0 | 8 | | 10.0 |

Our interest centers in the comparative difference in the 4 first divisions of the 2 groups as the last 4 divisions constitute only 8 or 9 per cent of their respective groups and are too small to influence materially conclusions drawn from the first 4 divisions but as a matter of information it might be noted that in the 4 last divisions of group 1 no distention occurred as contrasted with 10.6 per cent in the corresponding divisions of group 2.

It will be noted that there is a marked increase in percentage between divisions 2 and 3 and 3 and 4 of each group and an equally

sive days

In group 1 there were —

tenues. No cases were recorded with gastric distention. Therefore the number of cases with intestinal distention in this group was 47 or 13 per cent. Seven cases distended

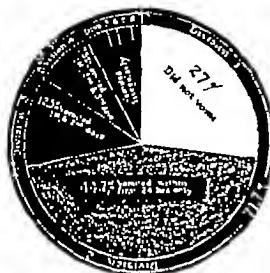


Fig. 2. Group 2. Cases in which rubber envelop pads were used.

TABLE V—GROUP 2 LAPAROTOMY WITH RUBBER ENVELOP PADS 400 CASES

| Division | Exact record day of convalescence | | | No. of cases in each division | Percentage in each division |
|----------|-----------------------------------|-----|-----|-------------------------------|-----------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 108 | 27.0 |
| 2 | x | 0 | 0 | 179 | 44.7 |
| 3 | x | x | 0 | 20 | 5.0 |
| 4 | | x | x | 20 | 5.0 |
| 5 | | | x | 14 | 3.5 |
| 6 | 0 | x | 0 | 0 | 0.0 |
| 7 | 0 | 0 | 0 | 10 | 2.5 |
| 8 | 0 | 0 | 0 | 4 | 1.0 |
| Total | | | | 400 | 100 |

x Indicates the day or days on which one or more vomits occurred.

is not traumatized is ether and the limit of its influence is 24 hours.

A COMPARATIVE STUDY OF THE 400 LAPAROTOMIZED CASES (GROUP 2) IN WHICH RUBBER ENVELOP PADS WERE USED AND THE 366 LAPAROTOMIZED CASES (GROUP 3) IN WHICH GAUZE WAS USED

EMESIS DURING FIRST THREE DAYS

An analysis of laparotomized cases in which rubber envelop pads were used—group 2—shows the following

Of the 400 cases constituting group 2 108 cases or 27 per cent did not vomit during the first 3 days of convalescence 179 cases,



Fig. 3. Group 3. Cases in which gauze pads were used.

TABLE VI—GROUP 3 LAPAROTOMIZED CASES WITH GAUZE 366 CASES

| Division | Exact record day of convalescence | | | No. of cases in each division | Percentage in each division |
|----------|-----------------------------------|-----|-----|-------------------------------|-----------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 46 | 12.6 |
| 2 | x | 0 | 0 | 126 | 34.5 |
| 3 | x | x | 0 | 21 | 5.7 |
| 4 | x | x | x | 63 | 17.2 |
| 5 | | 0 | x | 19 | 5.2 |
| 6 | 0 | 0 | x | 3 | 0.8 |
| 7 | | | | 0 | 0.0 |
| 8 | | | | 0 | 0.0 |
| Total | | | | 366 | 100 |

x Indicates the day or days on which one or more vomits occurred.

or 44.7 per cent, vomited during the first day only 50 cases or 12.5 per cent vomited during the first and second days only 20 cases, or 5.0 per cent vomited on each of the 3 days 14 cases, or 3.5 per cent vomited on the second and third days only 10 cases, or 2.5 per cent vomited on the second day only and 4 cases or 1 per cent, vomited on the third day only.

An analysis of laparotomized cases in which gauze was used—Group 3—shows the following

vomited during the first day only 71 cases,

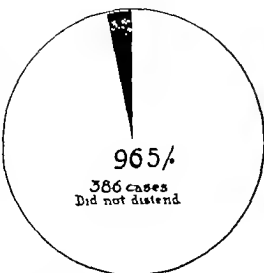


Fig. 4 Group 1. Four hundred cases of which 386 cases, or 96.5 per cent, did not distend; 14, or 3.5 per cent, did distend.



Fig. 3 Group 3. Three hundred sixty-six cases of which 319, or 87 per cent, did not distend and 47, or 13 per cent, did distend.

or 19.4 per cent vomited during the first 3 days only; 65 cases, or 17.7 per cent vomited on each of the 3 days; 19 cases, or 5.2 per cent vomited on the first and third days only; 5 cases, or 1.4 per cent vomited on the second and third days only; 6 cases, or 1.6 per cent, vomited on the second day only; and 6 cases, or 1.6 per cent, vomited on the third day only.

INTESTINAL DISTENTION

A comparative study of the two groups shows that in group 1 some form of distention occurred in 16 cases. Of these, 4 were recorded as distended and 12 as slightly distended. As 2 were recorded as gastric distention, the number of cases of

on 2 successive days, and 1 case distended on 3 successive days.

It may be of interest to note the difference of distention occurring in the corresponding divisions of the two groups as shown in table

TABLE VII.—DIFFERENCE OF DISTENTION

| Division | Group 1 | Percentage | Division | Group 3 | Percentage |
|----------|---------|------------|----------|---------|------------|
| | | 3.6 | | | 8.7 |
| | | 8.8 | 1 | | 8.7 |
| 3 | | 8 | 2 | | 15.5 |
| 4 | | 0.3 | 4 | | 30 |
| 5 | | 0 | 5 | | 5.0 |
| 6 | | 0 | 6 | | 40.0 |
| 7 | | 0 | 7 | | 23.0 |
| 8 | | 0 | 8 | | 15.0 |

Our interest centers in the comparative difference in the 4 first divisions of the 2 groups.

sive days

In group 1 there were

tened. No cases were recorded with "gastric distention." Therefore, the number of cases with intestinal distention in this group was 47, or 13 per cent. Seven cases distended

that in the 4 last divisions of group 1 no distention occurred as contrasted with 16.6 per cent in the corresponding divisions of group 3.

It will be noted that there is a marked increase in percentage between divisions 2 and 3 and 3 and 4 of each group and an equally

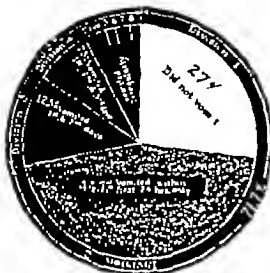


Fig. 2. Group 2. Cases in which rubber envelop pads were used.



Fig. 3. Group 3. Cases in which gauze pads were used.

TABLE V.—GROUP 2. LAPAROTOMY WITH RUBBER ENVELOP PADS. 400 CASES.

| Days since operation | Known period days of convalescence | | | No. of cases in each division | Percentage in each division |
|----------------------|------------------------------------|-----|-----|-------------------------------|-----------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | | | 108 | 27.0 |
| 2 | 0 | 0 | | 179 | 44.7 |
| 3 | 2 | 2 | | 50 | 12.5 |
| 4 | 2 | 2 | 2 | 29 | 7.25 |
| 5 | 2 | 0 | 2 | 14 | 3.5 |
| 6 | 0 | 0 | 2 | 0 | 0 |
| 7 | 0 | 0 | 2 | 0 | 0 |
| 8 | 0 | 0 | 2 | 0 | 0 |
| Total | | | | 400 | 100.0 |

Indicates the day or days on which one or more vomits occurred.

TABLE VI.—GROUP 3. LAPAROTOMIZED CASES WITH GAUZE. 366 CASES.

| Days since operation | Known period days of convalescence | | | No. of cases in each division | Percentage in each division |
|----------------------|------------------------------------|-----|-----|-------------------------------|-----------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 115 | 31.5 |
| 2 | 2 | 0 | 0 | 148 | 40.5 |
| 3 | 2 | 2 | 0 | 72 | 19.6 |
| 4 | 2 | 2 | 2 | 31 | 8.4 |
| 5 | 2 | 0 | 2 | 19 | 5.2 |
| 6 | 0 | 2 | 0 | 3 | .8 |
| 7 | 0 | 2 | 0 | 0 | 0 |
| 8 | 0 | 0 | 2 | 6 | 1.6 |
| Total | | | | 366 | 100.0 |

Indicates the day or days on which one or more vomits occurred.

is not traumatized is ether and the limit of its influence is 24 hours.

A COMPARATIVE STUDY OF THE 400 LAPAROTOMIZED CASES (GROUP 2) IN WHICH RUBBER ENVELOP PADS WERE USED AND THE 366 LAPAROTOMIZED CASES (GROUP 3) IN WHICH GAUZE WAS USED

EMESIS DURING FIRST THREE DAYS

An analysis of laparotomized cases in which rubber envelop pads were used—group 2—shows the following:

Of the 400 cases constituting group 2, 108 cases, or 27 per cent, did not vomit during the first 3 days of convalescence; 179 cases

or 44.7 per cent, vomited during the first day only; 50 cases, or 12.5 per cent, vomited during the first and second days only; 29 cases,

or 7.25 per cent, vomited on the second day only; and 4 cases, or 1 per cent, vomited on the third day only.

An analysis of laparotomized cases in which gauze was used—Group 3—shows the following:

Of the 366 cases of group 3, 115 cases, or 31.5 per cent, did not vomit during the first 3 days of convalescence; 148 cases, or 40.5 per cent, vomited during the first day only; 72 cases,

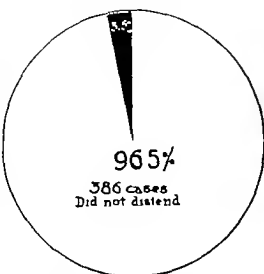


Fig. 4. Group 4. Four hundred cases of which 386 cases, or 96.5 per cent, did not distend; 14, or 3.5 per cent, did distend.

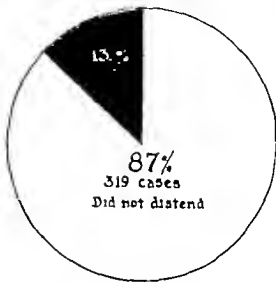


Fig. 5. Group 5. Three hundred sixty-six cases of which 319, or 87 per cent, did not distend; and 47, or 13 per cent, did distend.

or 19.4 per cent, vomited during the first 2 days only; 65 cases, or 17.7 per cent, vomited on each of the 3 days; 19 cases, or 5.2 per cent, vomited on the first and third days only; 5 cases, or 1.4 per cent, vomited on the second and third days only; 6 cases, or 1.6 per cent, vomited on the second day only; and 6 cases, or 1.6 per cent, vomited on the third day only.

INTESTINAL DISTENTION

A comparative study of the two groups shows that in group 2 some form of distention occurred in 16 cases. Of these, 4 were recorded as "distended" and 12 as "slightly distended." As 2 were recorded as "gastric distention" the number of cases of

on 2 successive days; and 1 case distended on 3 successive days.

It may be of interest to note the difference of distention occurring in the corresponding divisions of the two groups as shown in table

TABLE VII.—DIFFERENCE OF DISTENTION

| Divisions | Group 2 | Percentage | Divisions | Group 3 | Percentage |
|-----------|---------|------------|-----------|---------|------------|
| 1 | | 3.6 | | | 8.7 |
| | | 8 | | | 8.7 |
| 2 | | 3.0 | 3 | | 13.5 |
| 3 | | 3 | 4 | | 30 |
| 4 | | 0 | 5 | | 3.0 |
| 5 | | 0 | 6 | | 40.0 |
| 6 | | 0 | 7 | | 13.0 |
| 7 | | 0 | 8 | | 10.0 |

Our interest centers in the comparative difference in the 4 first divisions of the 2 groups, as the last 4 divisions constitute only 8 or 9 per cent of their respective groups, and are too small to influence materially conclusions drawn from the first 4 divisions, but as a matter of information it might be noted that in the 4 last divisions of group 2 no distention occurred as contrasted with 16.6 per cent in the corresponding divisions of group 3.

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five days
In group 2 there were

tenues. No cases were recorded with "gastric distention." Therefore the number of cases with intestinal distention in this group was 47, or 13 per cent. Seven cases distended



Fig. 2. Group 2. Cases in which rubber envelope pads were used.

TABLE V.—GROUP 2. LAPAROTOMY WITH RUBBER ENVELOPE PADS. 400 CASES.

| Days since operation | Known period days of convalescence | | | No. of cases in each division | Percentage in each division |
|----------------------|------------------------------------|-----|-----|-------------------------------|-----------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 108 | 27.0 |
| 2 | x | x | 0 | 79 | 44.7 |
| 3 | x | x | 0 | 50 | 5 |
| 4 | x | | | 49 | 3.5 |
| 5 | | | | 14 | 3.5 |
| 6 | | | | 6 | 5 |
| 7 | | | 0 | 10 | 5 |
| 8 | | | 0 | 4 | 0 |
| Total | | | | 400 | 100.0 |

Indicates the day or days on which one or more vomits occurred.

is not traumatized is ether and the limit of its influence is 24 hours.

A C ———— NOT RUBBER ENVELOPE PADS

366 LAPAROTOMIZED CASES (GROUP 3) IN WHICH GAUZE WAS USED

EMESIS DURING FIRST THREE DAYS

Of the 400 cases constituting group 2, 108 cases, or 27 per cent, did not vomit during the first 3 days of convalescence, 179 cases



Fig. 3. Group 3. Cases in which gauze pads were used.

TABLE VI.—GROUP 3. LAPAROTOMIZED CASES WITH GAUZE. 366 CASES.

| Days since operation | Known period days of convalescence | | | No. of cases in each division | Percentage in each division |
|----------------------|------------------------------------|-----|-----|-------------------------------|-----------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 46 | 12.6 |
| 2 | x | x | 0 | 148 | 40.5 |
| 3 | x | x | | 71 | 19.4 |
| 4 | x | x | | 65 | 17.7 |
| 5 | x | 0 | | 19 | 5 |
| 6 | 0 | x | | 5 | 1.4 |
| 7 | | | 0 | 6 | 1.6 |
| 8 | 0 | | x | 6 | 1.6 |
| Total | | | | 366 | 100 |

Indicates the day or days on which one or more vomits occurred.

or 44.7 per cent vomited during the first day only, 50 cases, or 12.5 per cent, vomited during the first and second days only, 29 cases, or 7.3 per cent, vomited on each of the 3 days, 14 cases, or 3.5 per cent, vomited on the second and third days only, 10 cases, or 2.5 per cent, vomited on the second day only, and 4 cases, or 1 per cent, vomited on the third day only.

An analysis of laparotomized cases in which gauze was used—Group 3—shows the following:

Of the 366 cases of group 3, 46 cases, or 12.6 per cent, did not vomit during the first 3 days of convalescence, 148 cases, or 40.5 per cent, vomited during the first day only, 71 cases,

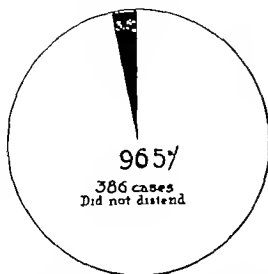


Fig. 4. Group 4. Four hundred cases of which 386 cases, or 96.5 per cent, did not distend and 14, or 3.5 per cent, did distend.

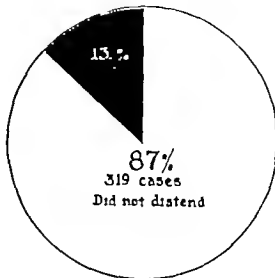


Fig. 5. Group 5. Three hundred sixty six cases of which 319, or 87 per cent, did not distend and 47, or 13 per cent, did distend.

or 19.4 per cent vomited during the first 3 days only, 65 cases, or 17.7 per cent vomited on each of the 3 days, 19 cases, or 5.2 per cent, vomited on the first and third days only, 5 cases, or 1.4 per cent vomited on the second and third days only, 6 cases, or 1.6 per cent, vomited on the second day only, and 6 cases, or 1.6 per cent vomited on the third day only.

INTESTINAL DISTENTION

A comparative study of the two groups shows that in group 2 some form of distention occurred in 16 cases. Of these, 4 were recorded as "distended" and 12 as "slightly distended." As 2 were recorded as "gastric distention" the number of cases of

on 2 successive days, and 1 case distended on 3 successive days.

It may be of interest to note the difference of distention occurring in the corresponding divisions of the two groups as shown in table

TABLE VII.—DIFFERENCE OF DISTENTION

| Division | Group 1 | Percentage | Division | Group 2 | Percentage |
|----------|---------|------------|----------|---------|------------|
| 1 | | 3.6 | 1 | | 8.7 |
| 2 | | 2.8 | 2 | | 8.7 |
| 3 | | 8.0 | 3 | | 15.5 |
| 4 | | 0.3 | 4 | | 30 |
| 5 | | 0 | 5 | | 5.0 |
| 6 | | 0 | 6 | | 40.0 |
| 7 | | 0 | 7 | | 33.0 |
| 8 | | 0 | 8 | | 10.0 |

Our interest centers in the comparative difference in the 4 first divisions of the 2 groups, as the last 4 divisions constitute only 8 or 9 per cent of their respective groups, and are too small to influence materially conclusions drawn from the first 4 divisions, but as a matter of information it might be noted that in the 4 last divisions of group 2 no distention occurred as contrasted with 16.6 per cent in the corresponding divisions of group 3.

It will be noted that there is a marked increase in percentage between divisions 2 and 3 and 3 and 4 of each group and an equally

five days

In group 2 there were
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tioned. No cases were recorded with "gastric distention." Therefore the number of cases with intestinal distention in this group was 47, or 13 per cent. Seven cases distended



Fig. 1. Group 2. Cases in which rubber envelope pads were used.



Fig. 2. Group 3. Cases in which gauze pads were used.

TABLE V—GROUP 2 LAPAROTOMY WITH RUBBER ENVELOPE PADS 400 CASES

| Days | Number record days of convalescence | | | No. of cases in each division | Percentage in each division |
|-------|-------------------------------------|-----|-----|-------------------------------|-----------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 0 | 27.0 |
| 2 | 1 | 0 | 0 | 10 | 44.7 |
| 3 | 2 | 2 | 0 | 40 | 10.0 |
| 4 | 3 | 3 | 1 | 70 | 7.3 |
| 5 | 4 | 4 | 1 | 14 | 3.5 |
| 6 | 0 | 0 | 3 | 6 | 1.5 |
| 7 | 0 | 0 | 0 | 0 | 1.5 |
| 8 | 0 | 0 | 1 | 1 | 0.0 |
| Total | | | | 400 | 100.0 |

Indicates the day or days on which one or more emeses occurred.

TABLE VI—GROUP 3 LAPAROTOMIZED CASES WITH GAUZE 366 CASES

| Days | Number record days of convalescence | | | No. of cases in each division | Percentage in each division |
|-------|-------------------------------------|-----|-----|-------------------------------|-----------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 46 | 12.6 |
| 2 | 1 | 0 | 0 | 215 | 46.6 |
| 3 | 2 | 2 | 0 | 70 | 19.4 |
| 4 | 3 | 2 | 0 | 85 | 7.7 |
| 5 | 0 | 0 | 0 | 19 | 5.2 |
| 6 | 0 | 0 | 3 | 6 | 1.6 |
| 7 | 0 | 0 | 0 | 0 | 1.6 |
| 8 | 0 | 0 | 0 | 0 | 0.0 |
| Total | | | | 366 | 100.0 |

Indicates the day or days on which one or more emeses occurred.

is not traumatized is ether and the limit of its influence is 24 hours.

A COMPARATIVE STUDY OF THE 400 LAPAROTOMIZED CASES (GROUP 2) IN WHICH RUBBER ENVELOPE PADS WERE USED AND THE 366 LAPAROTOMIZED CASES (GROUP 3) IN WHICH GAUZE WAS USED.

EMESIS DURING FIRST THREE DAYS

An analysis of laparotomized cases in which rubber envelope pads were used—group 2—shows the following:

Of the 400 cases constituting group 2 108 cases, or 27 per cent, did not vomit during the first 3 days of convalescence 179 cases,

14 cases, or 3.5 per cent, vomited on the second and third days only 10 cases, or 2.5 per cent vomited on the second day only and 4 cases, or 1 per cent, vomited on the third day only.

An analysis of laparotomized cases in which gauze was used—Group 3—shows the following:

| | |
|---|---|
| 1 | 0 |
| 2 | 3 |
| 3 | 1 |
| 4 | 1 |

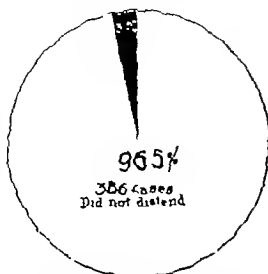


Fig. 4. Group 4. Four hundred cases of which 96.5 per cent, did not distend; 3.5, or 14, per cent, did distend.



Fig. 5. Group 5. Three hundred sixty-six cases of which 87 per cent, did not distend and 47, or 13 per cent, did distend.

or 19.4 per cent, vomited during the first 2 days only; 65 cases, or 17.7 per cent, vomited on each of the 3 days; 19 cases, or 5.3 per cent, vomited on the first and third days only; 5 cases, or 1.4 per cent, vomited on the second and third days only; 6 cases, or 1.6 per cent, vomited on the second day only; and 6 cases, or 1.6 per cent, vomited on the third day only.

INTESTINAL DISTENTION

A comparative study of the two groups shows that in group 2 some form of distention occurred in 16 cases. Of these, 4 were recorded as distended and 12 as slightly distended. As 2 were recorded as gastric distention, the number of cases of intestinal distention in this group was 14, or 3.5 per cent. Three cases distended on successive days; no case distended on 2 successive days, and 1 case distended on 3 successive days.

In group 3 there were 47 cases recorded as having had some form of distention; 33 of these were recorded as distended or considerably distended, and 14 as "slightly distended." No cases were recorded with "gastric distention." Therefore, the number of cases with intestinal distention in this group was 47, or 13 per cent. Seven cases distended

on 2 successive days, and 1 case distended on 3 successive days.

It may be of interest to note the difference of distention occurring in the corresponding divisions of the two groups as shown in table

TABLE VII.—DIFFERENCE OF DISTENTION

| Division | Group 2 | Percentage | Division | Group 3 | Percentage |
|----------|---------|------------|----------|---------|------------|
| 1 | | 3.6 | 2 | | 8.7 |
| 2 | | 2.8 | 3 | | 5.7 |
| 3 | | 8.0 | 4 | | 15.5 |
| 4 | | 10.3 | 5 | | 10 |
| 5 | | 0 | 6 | | 5.0 |
| 6 | | 0 | 7 | | 40.0 |
| 7 | | 0 | 8 | | 13.0 |
| 8 | | 0 | | | 10.0 |

Our interest centers in the comparative difference in the 4 first divisions of the 2 groups, as the last 4 divisions constitute only 8 or 9 per cent of their respective groups, and are too small to influence materially conclusions drawn from the first 4 divisions, but as a matter of information, it might be noted that in the 4 last divisions of group 2 no distention occurred as contrasted with 16.0 per cent in the corresponding divisions of group 3.

It will be noted that there is a marked increase in percentage between divisions 2 and 3 and 3 and 4 of each group and an equally



Fig. 2. Group 2. Cases in which rubber envelop pads were used.

TABLE V.—GROUP 2. LAPAROTOMY WITH RUBBER ENVELOP PADS. 400 CASES.

| Days since operation | Excess record Lays of convalescence in each day | | | No. of cases in each division | Percentage in each division |
|----------------------|--|-----|-----|----------------------------------|-----------------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 66 | 27.0 |
| 2 | 1 | 0 | 0 | 79 | 44.7 |
| 3 | 1 | 0 | 0 | 50 | 12.5 |
| 4 | 1 | 0 | 1 | 19 | 7.3 |
| 5 | 1 | 0 | 0 | 14 | 3.5 |
| 6 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 1 | 0 | 10 | 2.5 |
| 8 | 0 | 0 | 1 | 4 | 1.0 |
| Total | | | | 400 | 100 |

Indicates the day or days on which one or more vomits occurred.

is not traumatized is ether and the limit of its influence is 24 hours.

A COMPARATIVE STUDY OF THE 400 LAPAROTOMIZED CASES (GROUP 2) IN WHICH RUBBER ENVELOP PADS WERE USED AND THE 366 LAPAROTOMIZED CASES (GROUP 3) IN WHICH GAUZE WAS USED

EMESIS DURING FIRST THREE DAYS

An analysis of laparotomized cases in which rubber envelop pads were used—group 2—shows the following:

Of the 400 cases constituting group 2, 108 cases, or 27 per cent, did not vomit during the first 3 days of convalescence; 179 cases,



Fig. 3. Group 3. Cases in which gauze pads were used.

TABLE VI.—GROUP 3. LAPAROTOMIZED CASES WITH GAUZE. 366 CASES.

| Days since operation | Excess record Lays of convalescence in each day | | | No. of cases in each division | Percentage in each division |
|----------------------|--|-----|-----|----------------------------------|-----------------------------------|
| | 1st | 2nd | 3rd | | |
| 1 | 0 | 0 | 0 | 46 | 12.6 |
| 2 | 1 | 0 | 0 | 125 | 46.2 |
| 3 | 1 | 0 | 0 | 71 | 19.4 |
| 4 | 1 | 0 | 1 | 25 | 7.3 |
| 5 | 1 | 0 | 1 | 19 | 5.3 |
| 6 | 0 | 0 | 0 | 3 | 1.0 |
| 7 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 6 | 1.6 |
| Total | | | | 366 | 100 |

Indicates the day or days on which one or more vomits occurred.

or 44.7 per cent, vomited during the first day only; 50 cases, or 12.5 per cent, vomited during the first and second days only; 29 cases, or 7.3 per cent, vomited on each of the 3 days; 24 cases, or 3.5 per cent, vomited on the second and third days only; 10 cases, or 2.5 per cent, vomited on the second day only; and 4 cases, or 1 per cent, vomited on the third day only.

An analysis of laparotomized cases in which gauze was used—Group 3—shows the following:

Of the 366 cases constituting group 3, 46 cases, or 12.6

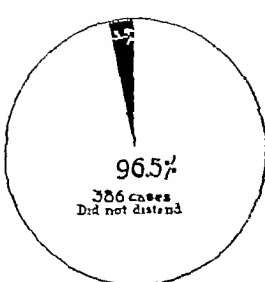


Fig. 1. Group 1. Four hundred cases (which 3.6 cases, or 0.9 per cent, did not distend, 34, or 8.5 per cent, did distend).

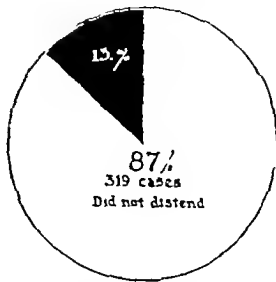


Fig. 2. Group 2. Three hundred and eighty-five cases of which 50, or 13 per cent, did not distend and 285, or 74 per cent, did distend.

or 19.4 per cent, vomited during the first days only 65 cases or 1 per cent vomited on each of the 3 days 19 cases or 5 per cent vomited on the first and third days only 5 cases, or 1.4 per cent vomited on the second and third days only 6 cases or 1.6 per cent, vomited on the second day only and 6 cases or 1.6 per cent, vomited on the third day only.

INTERNAL DISTENTION

A comparative study of the two groups shows that in group 1 some form of distention occurred in 10 cases. Of these 4 were recorded as distended and 1 as slightly distended. As were recorded as "gastric distention" the number of cases of internal distention in this group was 14, or 3 per cent. Three cases distended on 2 successive days, no case distended on 3 successive days.

In group 2 there were 41 cases recorded as having had some form of distention. 15 of these were recorded as "distended" or considerably distended and 14 as slightly distended. No cases were recorded with "gastric distention." Therefore, the number of cases with internal distention in this group was 41, or 13 per cent. Seven cases distended

on 2 successive days and 1 case distended on 3 successive days.

It may be of interest to note the difference of distention occurring in the corresponding divisions of the two groups as shown in table

TABLE VII.—DIFFERENCE OF DISTENTION

| Division | Group 1 | Percentage | Division | Group 2 | Percentage |
|----------|---------|------------|----------|---------|------------|
| 1 | | 3.6 | 1 | | 8.7 |
| 2 | | 3.5 | 2 | | 8.2 |
| 3 | | 6.5 | 3 | | 3.3 |
| 4 | | 3 | 4 | | 20 |
| 5 | | 0 | 5 | | 5.0 |
| 6 | | 0 | 6 | | 43.0 |
| 7 | | 0 | 7 | | 33 |
| 8 | | 0 | 8 | | 10.0 |

Our interest centers in the comparative difference in the 4 first divisions of the 2 groups as the last 4 divisions constitute only 8 or 9 per cent of their respective groups, and are too small to influence materially conclusions drawn from the first 4 divisions, but as a matter of information, it might be noted that in the 4 last divisions of group 2 no distention occurred as contrasted with 16.6 per cent in the corresponding divisions of group 3.

It will be noted that there is a marked increase in percentage between divisions 5 and 5 and 3 and 4 of each group and an equally

striking contrast of difference in divisions 3

corresponds with the increase in the duration of emesis in each respective division namely two successive days of emesis in division 3 and 3 successive days of emesis in division 4

greater degree in one group than in the other

Our previous analysis of group 1 showed that such a difference could not be attributed to the length of time ether was administered to the amount of morphine, or to the character of operation. To what then can such a difference be due?

division 3 of group 2 we find distention in 8 per cent of cases as compared to 15.5 per cent in the corresponding division in group 3 and 12.5 per cent emesis in the division 3 of group 2 as compared to 19.4 per cent in the corresponding division of group 3. In division 4 of group 2 we find distention in 10.3 per cent of cases as compared to 20.1 per cent in the corresponding division of group 3 and 7.3 per cent emesis in division 4 of group 2 as compared to 17.7 per cent in the corresponding division of group 3.

This analysis shows that the common causative factor which prolonged the time or duration of emesis and increased the percent

and distention than in group 3 and as in group 2 the procedure adopted to keep the intestines out of the pelvis was less traumatic

than in group 3

MORPHINE

A comparative study with respect to morphine shows that in group 2 there were 17 patients who received no morphine during the first second and third days of convalescence. These were classified with respect to operations as shown in Table VIII

TABLE VIII.—NO MORPHINE GIVEN IN FIRST THREE DAYS GROUP 2

| | |
|---------------------------|-------------------|
| Retroversion | 1 |
| Supravaginal hysterectomy | 5 |
| Adhesal operations | 3 |
| Amyotomies | |
| Exploratory | 1 |
| Separation of adhesions | |
| Reversion of uterus | |
| Total | 7 or 4.9 per cent |

In group 3 there were 9 patients who received no morphine during the first 3 days of convalescence. These were classified with respect to operations as follows in Table IX

TABLE IX.—NO MORPHINE GIVEN IN FIRST THREE DAYS GROUP 3

| | |
|---------------------------|-------------------|
| Retroversion | |
| Supravaginal hysterectomy | 1 |
| Appendix | 1 |
| Exploratory | |
| Amyotomies | 2 |
| Total | 4 or 2.4 per cent |

It will be seen that practically 50 per cent more of cases received no morphine on the first 3 days of convalescence in group 2 than in group 3.

The total amount of morphine used in group 2 was 330 grains, or an average of 0.83 grain during the first 3 days of convalescence.

The total amount of morphine used in group 3 was 347 grains or an average of 0.95 grain during the first 3 days of convalescence.

These analyses show that in group 2 not only did a much greater number of individual cases pass through the first 3 days of convalescence without receiving morphine than in group 3 but that each day there were many more cases in group 2 than in group 3 which received no morphine, also that the total number of grains used in the 400 cases of group 2 were considerably less, i. e. 17 than the total number of grains used in the 366 cases of group 3.

In the first 4 divisions of each group, the average amount of morphine administered

TABLE V—COMPARISON OF RESULTS WHERE MORPHINE IS USED AND WHERE IT IS NOT

| AMOUNT OF MORPHINE ADMINISTERED ON THE INDIVIDUAL DAYS | | | |
|--|---------|---------|-------|
| Group | | | |
| 1st day | 68 grs | Average | 42 gr |
| 2nd day | 8 grs | average | 30 gr |
| 3rd day | 44 grs | average | 1 gr |
| Group 3 | | | |
| 1st day | 190 grs | Average | 52 gr |
| 2nd day | 100 grs | average | 30 gr |
| 3rd day | 45 grs | average | 3 gr |

| CASES RECEIVING NO MORPHINE ON THE INDIVIDUAL DAYS | | | |
|--|-----------|----|-------------|
| Group | | | |
| 1st day | 25 cases | or | 7 per cent |
| 2nd day | 95 cases | or | 24 per cent |
| 3rd day | 57 cases | or | 64 per cent |
| Group | | | |
| 1st day | cases | or | 3 per cent |
| 2nd day | 64 cases | or | 24 per cent |
| 3rd day | 176 cases | or | 47 per cent |

was greater in division 4 than in the other divisions. The question may arise as to whether the extended duration of emesis in this division (namely emesis on each of the 3 days) was the result of a larger average amount of morphine administered in this division than was administered in the other divisions. But it will be remembered that it was established by the analysis of group 1 that morphine *per se* (postoperative) does not occasion emesis.

It is therefore evident that the increased amount of morphine administered was due to an increase in amount and extent of pain. This increase in the amount of pain in the laparotomized groups was the result of an element not found in the non-laparotomized i.e. peritoneal trauma and it is presumably this element that not only increased the amount of pain but extended the duration of emesis.

THE INFLUENCE OF RECTAL THERAPY ON POSTOPERATIVE EMESIS ITS COMPARATIVE USE IN GROUPS 1 AND 3

SALINE, BICARBONATE OF SODA, GLUCOSE SOLUTIONS AND HOT WATER ADMINISTERED PER RECTUM IMMEDIATELY BEFORE THE TERMINATION OF OPERATION

When saline bicarbonate of soda, glucose or hot water is administered *per rectum* immediately before the termination of an abdominal section what influence, if any

have they in lessening or preventing post operative emesis?

In group 2 no rectal therapy was used immediately before the termination of operation.

In group 3 there were 212 cases, or 58 per cent in which some form of rectal therapy was used immediately before the completion of operation.

The solutions were administered as follows

| | Cases |
|-----------------------------|-------|
| Saline solution | 40 |
| Bicarbonate of soda | 103 |
| Glucose 5 per cent solution | 8 |
| Hot water | 52 |

When the comparative records of groups 2 and 3 with respect to emesis are recalled the above analysis brings into serious question the efficacy of rectal therapy if it does not conclusively prove that the effect of such therapy with regard to preventing or modifying postoperative emesis is nil.

SALINE BICARBONATE OF SODA, AND GLUCOSE SOLUTION ADMINISTERED PER RECTUM IN THE FORM OF "DRIPS" AFTER OPERATION (MURPHY AND HARRIS)

The same question may be asked regarding the influence of these solutions upon post operative emesis in the form of drips as was asked regarding the administration of these solutions in quantity *per rectum* immediately before the termination of the operation.

In group 2 we find that the Murphy drip was used in 2 cases and the Harris drip in 5 cases total 7 cases or 1.7 per cent in 1 of these 7 cases the drip was used 2 days successively or 0.2 per cent.

In group 3 we find that the Murphy drip was used in 68 cases and the Harris drip in 13 cases total 81 cases or 22.1 per cent in 23 of these cases the "drip" was used 2 days successively and in 9 cases 3 days successively or a total of 8.7 per cent of cases in which the drip was used in successive days.

This analysis would lead us to practically the same conclusion as previously reached regarding the relationship of emesis to rectal therapy when used at the termination of operation but whatever influence postoperative rectal therapy in the form of drips

striking contrast of difference in divisions 3

corresponds with the increase in the duration of emesis in each respective division namely two successive days of emesis in division 3 and 3 successive days of emesis in division 4. Also the difference in percentage in the same divisions of the two groups is equally striking and shows that some influence, causative of both emesis and distention occurred to a greater degree in one group than in the other.

Our previous analysis of group 1 showed that such a difference could not be attributed to the length of time ether was administered, to the amount of morphine or to the character of operation. To what then can such a difference be due?

distention is peritoneal trauma but in division 3 of group 2 we find distention in 8 per cent of cases as compared to 15.5 per cent in the corresponding division in group 3 and 12.5 per cent emesis in the division 3 of group 2 as compared to 10.4 per cent in the corresponding division of group 3. In division 4 of group 2 we find distention in 10.3 per cent of cases as compared to 20.1 per cent in the corresponding division of group 3 and 7.3 per cent emesis in division 4 of group 2 as compared to 17.7 per cent in the corresponding division of group 3.

This analysis shows that the common causative factor which prolonged the time or duration of emesis and increased the percentage of distention influenced both groups but this is true to a lesser degree in one group than in the other leading us to the conclusion that as in divisions 3 and 4 in group 2 we have a markedly lessened percentage in both emesis and distention than in group 3 and as in group 2 the procedure adopted to keep the intestines out of the pelvis was less traumatizing than that used in group 3 a lesser degree of intestinal peritoneal trauma occurred resulting in less emesis and distention in group 2 than in group 3.

MORPHINE

A comparative study with respect to morphine shows that in group 2 there were 17 patients who received no morphine during the first second and third days of convalescence. These were classified with respect to operations as shown in Table VIII.

TABLE VIII—NO MORPHINE GIVEN IN FIRST THREE DAYS GROUP 2

| | |
|---------------------------|-----------------|
| Retrosion | 1 |
| Supravaginal hysterectomy | 1 |
| Adrenal operations | 1 |
| Myomectomy | 1 |
| Exploratory | 1 |
| Separation of adhesions | 1 |
| Resection of uterus | 1 |
| Total | 7 or 4 per cent |

In group 3 there were 9 patients who re-

TABLE IX—NO MORPHINE GIVEN IN FIRST THREE DAYS GROUP 3

| | |
|---------------------------|--------------------|
| Retrosion | 1 |
| Supravaginal hysterectomy | 1 |
| Appendix | 1 |
| Exploratory | 1 |
| Myomectomy | 1 |
| Total | 9, or 2.4 per cent |

It will be seen that practically 50 per cent more of cases received no morphine on the first 3 days of convalescence in group 2 than in group 3.

The total amount of morphine used in

cases pass through the first 3 days of convalescence without receiving morphine than in group 3 but that each day there were many more cases in group 2 than in group 3 which received no morphine also that the total number of grains used in the 400 cases of group 2 were considerably less, i.e. 17 than the total number of grains used in the 366 cases of group 3.

In the first 4 divisions of each group the average amount of morphine administered

TABLE VI.—TIME OF ETHERIZATION IN THE FIRST FOUR DIVISIONS OF GROUPS 2 AND 3

TIME OF ETHERIZATION AND ITS RELATION TO POSTOPERATIVE EMESIS

A study of the laparotomized groups 2 and 3 with respect to the relationship between time of etherization and postoperative emesis cannot be made with the same satisfaction as the non-laparotomized group (group 1) because of the introduction in the laparotomized groups of the element of peritoneal trauma.

However a study of the first four divisions of groups 2 and 3 (divisions which constitute

and the duration of postoperative emesis—namely that the element of time *per se* has little or no influence as a factor in extending the duration of postoperative emesis.

It is self-evident that the influence of time in division 1 of groups 2 and 3 could have had no possible bearing upon the question of emesis in this division as no emesis occurred

nd 3
y i i

The difference in percentage is here so little and the difference in percentage with respect to emesis is so small, namely 4 per cent that this division may be left out of consideration in our analysis.

In division 3 of group 2 we find that there was 36.9 per cent of cases which were anesthetized 2 hours or more as compared to 18.3 per cent in the corresponding division of group 3 and in division 4 of group 2 we find that there was 41.3 per cent of cases which were anesthetized 2 hours or more as compared to 24.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases which were under ether

| DIVISION 1 | | |
|--------------------|------------------------|--|
| Group 2—105 Cases | | |
| T 2 hours and over | 13.9 per cent of cases | |
| Less than 2 hours | 70.1 per cent of cases | |
| Group 3—46 Cases | | |
| Two hours and over | 18.0 per cent of cases | |
| Less than 2 hours | 7.1 per cent of cases | |
| DIVISION 2 | | |
| Group 2—179 Cases | | |
| T 2 hours and over | 18.7 per cent of cases | |
| Less than 2 hours | 71.3 per cent of cases | |
| Group 3—148 Cases | | |
| Two hours and over | 7.7 per cent of cases | |
| Less than 2 hours | 7.3 per cent of cases | |
| DIVISION 3 | | |
| Group 2—98 Cases | | |
| Two hours and over | 36.9 per cent of cases | |
| Less than 2 hours | 63.1 per cent of cases | |
| Group 3—71 Cases | | |
| Two hours and over | 8.3 per cent of cases | |
| Less than 2 hours | 7.7 per cent of cases | |
| DIVISION 4 | | |
| Group 2—29 Cases | | |
| T 2 hours and over | 41.3 per cent of cases | |
| Less than 2 hours | 58.7 per cent of cases | |
| Group 3—63 Cases | | |
| T 2 hours and over | 24.6 per cent of cases | |
| Less than 2 hours | 75.6 per cent of cases | |

this group was larger than in the corresponding divisions of group 3 i.e. 12.5 per cent as compared to 19.4 per cent and 7.3 per cent as compared to 17.7 per cent.

In division 3 of group 2 we find that there was 63.1 per cent of cases which were anesthetized between 1 and 2 hours as compared to 81.7 per cent in the corresponding division of group 3 and in division 4 of group 2 we find that there was 58.7 per cent of cases which were anesthetized between 1 and 2 hours as compared to 75.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases which were under ether between 1 and 2 hours of divisions 3 and 4 of

TABLE XII
DIVISION 1

Group 2

| |
|------------------------------|
| Supraumbilical hysterectomy |
| Paraumbilical |
| Periumbilical |
| Abdominal and appendicectomy |
| Abdominal and appendicectomy |
| Myomectomy |
| Hysterectomy |

Group 3

| |
|------------------------------|
| Supraumbilical hysterectomy |
| Paraumbilical |
| Periumbilical |
| Abdominal and appendicectomy |
| Myomectomy |
| Hysterectomy |

DIVISION 2

Group 1

| |
|------------------------------|
| Supraumbilical hysterectomy |
| Paraumbilical |
| Periumbilical |
| Abdominal and appendicectomy |
| Myomectomy |
| Hysterectomy |

Group 2

| |
|------------------------------|
| Supraumbilical hysterectomy |
| Paraumbilical |
| Periumbilical |
| Abdominal and appendicectomy |
| Myomectomy |
| Hysterectomy |

DIVISION 3

Group 1

| |
|------------------------------|
| Supraumbilical hysterectomy |
| Paraumbilical |
| Periumbilical |
| Abdominal and appendicectomy |
| Myomectomy |
| Hysterectomy |

Group 2

| |
|------------------------------|
| Supraumbilical hysterectomy |
| Paraumbilical |
| Periumbilical |
| Abdominal and appendicectomy |
| Myomectomy |
| Hysterectomy |

DIVISION 4

Group 1

| |
|------------------------------|
| Supraumbilical hysterectomy |
| Paraumbilical |
| Periumbilical |
| Abdominal and appendicectomy |
| Myomectomy |
| Hysterectomy |

Group 2

| |
|------------------------------|
| Supraumbilical hysterectomy |
| Paraumbilical |
| Periumbilical |
| Abdominal and appendicectomy |
| Myomectomy |
| Hysterectomy |

TABLE XIII—COMPARATIVE STUDY OF OPERATORS ANESTHETISTS, ETC.

| Operator | In group 1—rubber pad | In group 2—glass pad |
|----------|--------------------------------|--------------------------------|
| No. | 10 | 10 |
| 1 | did 40 per cent of entire work | did 70 per cent of entire work |
| 2 | did 30 per cent of entire work | did 30 per cent of entire work |
| 3 | did 6 per cent of entire work | did 0 per cent of entire work |
| 4 | did 24 per cent of entire work | did 0 per cent of entire work |
| 5 | did 0 per cent of entire work | did 0 per cent of entire work |
| 6 | did 0 per cent of entire work | did 0 per cent of entire work |
| 7 | did 0 per cent of entire work | did 0 per cent of entire work |
| 8 | did 0 per cent of entire work | did 0 per cent of entire work |
| 9 | did 0 per cent of entire work | did 0 per cent of entire work |
| 10 | did 0 per cent of entire work | did 0 per cent of entire work |
| 11 | did 0 per cent of entire work | did 0 per cent of entire work |
| 12 | did 0 per cent of entire work | did 0 per cent of entire work |
| 13 | did 0 per cent of entire work | did 0 per cent of entire work |
| 14 | did 0 per cent of entire work | did 0 per cent of entire work |
| 15 | did 0 per cent of entire work | did 0 per cent of entire work |
| 16 | did 0 per cent of entire work | did 0 per cent of entire work |
| 17 | did 0 per cent of entire work | did 0 per cent of entire work |
| 18 | did 0 per cent of entire work | did 0 per cent of entire work |
| 19 | did 0 per cent of entire work | did 0 per cent of entire work |
| 20 | did 0 per cent of entire work | did 0 per cent of entire work |
| 21 | did 0 per cent of entire work | did 0 per cent of entire work |
| 22 | did 0 per cent of entire work | did 0 per cent of entire work |
| 23 | did 0 per cent of entire work | did 0 per cent of entire work |
| 24 | did 0 per cent of entire work | did 0 per cent of entire work |
| 25 | did 0 per cent of entire work | did 0 per cent of entire work |
| 26 | did 0 per cent of entire work | did 0 per cent of entire work |
| 27 | did 0 per cent of entire work | did 0 per cent of entire work |
| 28 | did 0 per cent of entire work | did 0 per cent of entire work |
| 29 | did 0 per cent of entire work | did 0 per cent of entire work |
| 30 | did 0 per cent of entire work | did 0 per cent of entire work |
| 31 | did 0 per cent of entire work | did 0 per cent of entire work |
| 32 | did 0 per cent of entire work | did 0 per cent of entire work |
| 33 | did 0 per cent of entire work | did 0 per cent of entire work |
| 34 | did 0 per cent of entire work | did 0 per cent of entire work |
| 35 | did 0 per cent of entire work | did 0 per cent of entire work |
| 36 | did 0 per cent of entire work | did 0 per cent of entire work |
| 37 | did 0 per cent of entire work | did 0 per cent of entire work |
| 38 | did 0 per cent of entire work | did 0 per cent of entire work |
| 39 | did 0 per cent of entire work | did 0 per cent of entire work |
| 40 | did 0 per cent of entire work | did 0 per cent of entire work |
| 41 | did 0 per cent of entire work | did 0 per cent of entire work |
| 42 | did 0 per cent of entire work | did 0 per cent of entire work |
| 43 | did 0 per cent of entire work | did 0 per cent of entire work |
| 44 | did 0 per cent of entire work | did 0 per cent of entire work |
| 45 | did 0 per cent of entire work | did 0 per cent of entire work |
| 46 | did 0 per cent of entire work | did 0 per cent of entire work |
| 47 | did 0 per cent of entire work | did 0 per cent of entire work |
| 48 | did 0 per cent of entire work | did 0 per cent of entire work |
| 49 | did 0 per cent of entire work | did 0 per cent of entire work |
| 50 | did 0 per cent of entire work | did 0 per cent of entire work |
| 51 | did 0 per cent of entire work | did 0 per cent of entire work |
| 52 | did 0 per cent of entire work | did 0 per cent of entire work |
| 53 | did 0 per cent of entire work | did 0 per cent of entire work |
| 54 | did 0 per cent of entire work | did 0 per cent of entire work |
| 55 | did 0 per cent of entire work | did 0 per cent of entire work |
| 56 | did 0 per cent of entire work | did 0 per cent of entire work |
| 57 | did 0 per cent of entire work | did 0 per cent of entire work |
| 58 | did 0 per cent of entire work | did 0 per cent of entire work |
| 59 | did 0 per cent of entire work | did 0 per cent of entire work |
| 60 | did 0 per cent of entire work | did 0 per cent of entire work |
| 61 | did 0 per cent of entire work | did 0 per cent of entire work |
| 62 | did 0 per cent of entire work | did 0 per cent of entire work |
| 63 | did 0 per cent of entire work | did 0 per cent of entire work |
| 64 | did 0 per cent of entire work | did 0 per cent of entire work |
| 65 | did 0 per cent of entire work | did 0 per cent of entire work |
| 66 | did 0 per cent of entire work | did 0 per cent of entire work |
| 67 | did 0 per cent of entire work | did 0 per cent of entire work |
| 68 | did 0 per cent of entire work | did 0 per cent of entire work |
| 69 | did 0 per cent of entire work | did 0 per cent of entire work |
| 70 | did 0 per cent of entire work | did 0 per cent of entire work |
| 71 | did 0 per cent of entire work | did 0 per cent of entire work |
| 72 | did 0 per cent of entire work | did 0 per cent of entire work |
| 73 | did 0 per cent of entire work | did 0 per cent of entire work |
| 74 | did 0 per cent of entire work | did 0 per cent of entire work |
| 75 | did 0 per cent of entire work | did 0 per cent of entire work |
| 76 | did 0 per cent of entire work | did 0 per cent of entire work |
| 77 | did 0 per cent of entire work | did 0 per cent of entire work |
| 78 | did 0 per cent of entire work | did 0 per cent of entire work |
| 79 | did 0 per cent of entire work | did 0 per cent of entire work |
| 80 | did 0 per cent of entire work | did 0 per cent of entire work |
| 81 | did 0 per cent of entire work | did 0 per cent of entire work |
| 82 | did 0 per cent of entire work | did 0 per cent of entire work |
| 83 | did 0 per cent of entire work | did 0 per cent of entire work |
| 84 | did 0 per cent of entire work | did 0 per cent of entire work |
| 85 | did 0 per cent of entire work | did 0 per cent of entire work |
| 86 | did 0 per cent of entire work | did 0 per cent of entire work |
| 87 | did 0 per cent of entire work | did 0 per cent of entire work |
| 88 | did 0 per cent of entire work | did 0 per cent of entire work |
| 89 | did 0 per cent of entire work | did 0 per cent of entire work |
| 90 | did 0 per cent of entire work | did 0 per cent of entire work |
| 91 | did 0 per cent of entire work | did 0 per cent of entire work |
| 92 | did 0 per cent of entire work | did 0 per cent of entire work |
| 93 | did 0 per cent of entire work | did 0 per cent of entire work |
| 94 | did 0 per cent of entire work | did 0 per cent of entire work |
| 95 | did 0 per cent of entire work | did 0 per cent of entire work |
| 96 | did 0 per cent of entire work | did 0 per cent of entire work |
| 97 | did 0 per cent of entire work | did 0 per cent of entire work |
| 98 | did 0 per cent of entire work | did 0 per cent of entire work |
| 99 | did 0 per cent of entire work | did 0 per cent of entire work |
| 100 | did 0 per cent of entire work | did 0 per cent of entire work |

That is in divisions 3 and 4 of group 2 there was a greater percentage of cases which were etherized a hours or more with a less percentage of postoperative vomiting respecting days than in the corresponding division of group 3 while in divisions 3 and 4 of group 3 there was a greater percentage of cases etherized less than 2 hours with a greater percentage of postoperative emesis than in the corresponding divisions of group 2

A STUDY OF THE CHARACTER OF OPERATION IN THE TWO GROUPS WITH RESPECT TO THEIR INFLUENCE UPON EMESIS

As it might be argued that the character of operation influences postoperative results contrary to of opera

(the two groups. As the first four divisions of groups 2 and 3 constitute 91.5 per cent and 90.2 per cent of their respective groups they are

GROUP 1 was further broken down as follows:

TABLE XI.—TIME OF ETHERIZATION IN THE FIRST FOUR DIVISIONS OF GROUPS 2 AND 3

TIME OF ETHERIZATION AND ITS RELATION TO POSTOPERATIVE EMESIS

A study of the laparotomized groups 2 and 3 with respect to the relationship between time of etherization and postoperative emesis cannot be made with the same satisfaction as the non-laparotomized group (group 1) because of the introduction in the laparotomized groups of the element of peritoneal trauma.

However a study of the first four divisions of groups 2 and 3 (divisions which constitute collectively 91.3 per cent and 90.2 per cent of

and the duration of postoperative emesis—namely that the element of time *per se* has little or no influence as a factor in extending the duration of postoperative emesis.

It is self-evident that the influence of time in division 1 of groups 2 and 3 could have had no possible bearing upon the question of emesis in this division as no emesis occurred in this division of either group.

The difference in percentage is here so little and the difference in percentage with respect to emesis is so small, namely 4 per cent that this division may be left out of consideration in our analysis.

In division 3 of group 2 we find that there was 36.9 per cent of cases which were anesthetized 2 hours or more as compared to 18.3 per cent in the corresponding division of group 3 and in division 4 of group 2 we find that there was 41.3 per cent of cases which were anesthetized 2 hours or more as compared to 24.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases, which were under ether 2

DIVISION 1
Group 2—106 Cases

| | |
|--------------------|------------------------|
| T 2 hours and over | 22.9 per cent of cases |
| Less than 2 hours | 76.1 per cent of cases |

Group 3—46 Cases

| | |
|--------------------|------------------------|
| T 2 hours and over | 26.1 per cent of cases |
| Less than 2 hours | 73.9 per cent of cases |

DIVISION 2

Group 2—170 Cases

| | |
|--------------------|------------------------|
| T 2 hours and over | 28.7 per cent of cases |
| Less than 2 hours | 71.3 per cent of cases |

Group 3—148 Cases

| | |
|--------------------|------------------------|
| T 2 hours and over | 27.7 per cent of cases |
| Less than 2 hours | 72.3 per cent of cases |

DIVISION 3

Group 2—90 Cases

| | |
|--------------------|------------------------|
| T 2 hours and over | 36.9 per cent of cases |
| Less than 2 hours | 63.1 per cent of cases |

Group 3—71 Cases

| | |
|--------------------|------------------------|
| T 2 hours and over | 18.3 per cent of cases |
| Less than 2 hours | 81.7 per cent of cases |

DIVISION 4

Group 2—229 Cases

| | |
|--------------------|------------------------|
| T 2 hours and over | 41.3 per cent of cases |
| Less than 2 hours | 58.7 per cent of cases |

Group 3—64 Cases

| | |
|--------------------|------------------------|
| T 2 hours and over | 24.6 per cent of cases |
| Less than 2 hours | 75.6 per cent of cases |

1

vomiting respecting days in these divisions as this group was larger than in the corresponding divisions of group 2 i.e. 32.5 per cent as compared to 19.4 per cent and 7.3 per cent as compared to 17.7 per cent.

In division 3 of group 2 we find that there was 63.1 per cent of cases which were anesthetized between 1 and 2 hours as compared to 81.7 per cent in the corresponding division of group 3 and in division 4 of group 2 we find that there was 58.7 per cent of cases which were anesthetized between 1 and 2 hours as compared to 75.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases which were under ether either between 1 and 2 hours of divisions 3 and 4 of

TABLE XII

DIVISION 1

Group 2

Supravaginal hysterectomy
Pachymetrectomy
Retroperitoneum
Adrenal and appendiceal
Resection of intestines
Exploratory
Myomectomy

35
24
24
3

Operators
In group 2—rather good
No. 1 did 61 per cent of entire work
No. 2 did 32 per cent of entire work
No. 3 did 6 per cent of entire work

In group 3—quite good
No. 1 did 79 per cent of entire work
No. 2 did 30 per cent of entire work

Group 3

Supravaginal hysterectomy
Pachymetrectomy
Retroperitoneum
Adrenal and appendiceal
Myomectomy

7
16
3

As complete
Resected did 14 per cent of entire work
Special did 17 per cent of entire work
Not recorded, 1 per cent of entire work
Peritoneal adhesions
In 2 per cent
Adhesions and segment drainage
In 1 per cent

Resected did 77 per cent of entire work
Special did 20 per cent of entire work
Not recorded, 1 per cent of entire work
In 1 per cent

DIVISION 2

Group 1

Supravaginal hysterectomy
Pachymetrectomy
Retroperitoneum
Adrenal and appendiceal
Exploratory
Myomectomy
Ventral hernia

36
20
27
20

In group 1—rather good
No. 1 did 61 per cent of entire work
No. 2 did 32 per cent of entire work
No. 3 did 6 per cent of entire work

In group 2—quite good
No. 1 did 79 per cent of entire work
No. 2 did 30 per cent of entire work

Group 3

Supravaginal hysterectomy
Pachymetrectomy
Retroperitoneum
Adrenal and appendiceal
Exploratory
Myomectomy
Ventral hernia

26
16
27
20

In group 3—rather good
No. 1 did 61 per cent of entire work
No. 2 did 32 per cent of entire work
No. 3 did 6 per cent of entire work

In group 4—quite good
No. 1 did 79 per cent of entire work
No. 2 did 30 per cent of entire work

DIVISION 3

Group 1

Supravaginal hysterectomy
Pachymetrectomy
Retroperitoneum
Adrenal and appendiceal
Myomectomy
Ventral hernia

36
20
27
20

In group 5—rather good
No. 1 did 61 per cent of entire work
No. 2 did 32 per cent of entire work
No. 3 did 6 per cent of entire work

In group 6—quite good
No. 1 did 79 per cent of entire work
No. 2 did 30 per cent of entire work

Group 3

Supravaginal hysterectomy
Pachymetrectomy
Retroperitoneum
Adrenal and appendiceal
Exploratory
Myomectomy
Ventral hernia

26
16
27
20

In group 7—rather good
No. 1 did 61 per cent of entire work
No. 2 did 32 per cent of entire work
No. 3 did 6 per cent of entire work

In group 8—quite good
No. 1 did 79 per cent of entire work
No. 2 did 30 per cent of entire work

DIVISION 4

Group 1

Supravaginal hysterectomy
Pachymetrectomy
Retroperitoneum
Adrenal and appendiceal
Myomectomy
Ventral hernia

36
20
27
20

In group 9—rather good
No. 1 did 61 per cent of entire work
No. 2 did 32 per cent of entire work
No. 3 did 6 per cent of entire work

In group 10—quite good
No. 1 did 79 per cent of entire work
No. 2 did 30 per cent of entire work

Group 3

Supravaginal hysterectomy
Pachymetrectomy
Retroperitoneum
Adrenal and appendiceal
Myomectomy
Ventral hernia

26
16
27
20

In group 11—rather good
No. 1 did 61 per cent of entire work
No. 2 did 32 per cent of entire work
No. 3 did 6 per cent of entire work

In group 12—quite good
No. 1 did 79 per cent of entire work
No. 2 did 30 per cent of entire work

That is in divisions 3 and 4 of group 2 there was a greater percentage of cases which were etherized 3 hours or more with a less percentage of postoperative vomiting respecting days than in the corresponding division of group 3 while in divisions 3 and 4 of group 3 there was a greater percentage of cases etherized less than 2 hours with a greater percentage of postoperative emesis than in the corresponding divisions of group 2

A STUDY OF THE CHARACTER OF OPERATION IN THE TWO GROUPS WITH RESPECT TO THEIR INFLUENCE UPON EMESIS

As it might be argued that the character of operation influences postoperative results with respect to emesis it will be necessary to compare the character and number of operations in the different divisions of the two groups. As the first four divisions of group 2 and 3 constitute 91.5 per cent and 90.2 per cent of their respective groups they are

which emesis at times is due

TIME OF ETHERIZATION AND ITS RELATION TO POSTOPERATIVE EMESIS

A study of the laparotomized groups 2 and 3 with respect to the relationship between time of etherization and postoperative emesis cannot be made with the same satisfaction as the non-laparotomized group (group 1) because of the introduction in the laparotomized groups of the element of peritoneal trauma.

However a study of the first four divisions of groups 2 and 3 (divisions which constitute collectively 91.5 per cent and 90.2 per cent of their respective groups) corroborate the finding in the study of group 1 with respect to the relationship between the time of etherization and the duration of postoperative emesis—namely that the element of time *per se* has little or no influence as a factor in extending the duration of postoperative emesis.

emesis in this division, as no emesis occurred

3

11

per cent of cases which were etherized two or more hours and a difference of only 1 per cent of cases which were etherized less than 2 hours.

The difference in percentage is here 40 little and the difference in percentage with respect to emesis is so small, namely 4 per cent, that this division may be left out of consideration in our analysis.

In division 3 of group 2 we find that there was 36.9 per cent of cases which were ante-

TABLE XI.—TIME OF ETHERIZATION IN THE FIRST FOUR DIVISIONS OF GROUPS 2 AND 3

| DIVISION 1 | | |
|--------------------|--|------------------------|
| Group 2—108 Cases | | |
| T 2 hours and over | | 3.9 per cent of cases |
| Less than 2 hours | | 70.1 per cent of cases |
| Group 3—46 Cases | | |
| T 2 hours and over | | 28.0 per cent of cases |
| Less than 2 hours | | 72.0 per cent of cases |
| DIVISION 2 | | |
| Group 2—179 Cases | | |
| Two hours and over | | 28.7 per cent of cases |
| Less than 2 hours | | 71.3 per cent of cases |
| Group 3—148 Cases | | |
| Two hours and over | | 7.7 per cent of cases |
| Less than 2 hours | | 71.3 per cent of cases |
| DIVISION 3 | | |
| Group 2—50 Cases | | |
| T 2 hours and over | | 36.0 per cent of cases |
| Less than 2 hours | | 63.1 per cent of cases |
| Group 3—7 Cases | | |
| T 2 hours and over | | 8.3 per cent of cases |
| Less than 2 hours | | 71.7 per cent of cases |
| DIVISION 4 | | |
| Group 2—39 Cases | | |
| T 2 hours and over | | 41.3 per cent of cases |
| Less than 2 hours | | 58.7 per cent of cases |
| Group 3—65 Cases | | |
| T 2 hours and over | | 21.6 per cent of cases |
| Less than 2 hours | | 73.6 per cent of cases |

compared to 29.4 per cent and 7.3 per cent as compared to 17.7 per cent.

In division 3 of group 2 we find that there was 63.1 per cent of cases which were ante-

that there was 41.3 per cent of cases which were anesthetized 2 hours or more as compared to 24.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases, which were under ether 2

3 which were anesthetized between 1 and 2 hours as compared to 75.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases which were under ether between 1 and 2 hours of divisions 3 and 4 of

TABLE XII
DIVISION I

Group 1

Group 2

DIVISION 2

Group

Group 2

DIVISION 3

Group

Group 1

DIVISION 4

Group 2

Group 3

TABLE XIII—COMPARATIVE STUDY OF OPERATORS ANESTHETISTS ETC.

Operator

In group 1—rubber pad

In group 2—rubber pad

| | | |
|----|--------------------------------------|--------------------------------------|
| 32 | No. 1 did 65 per cent of entire work | No. 1 did 70 per cent of entire work |
| 33 | No. 2 did 5 per cent of entire work | No. 2 did 30 per cent of entire work |
| 34 | No. 3 did 6 per cent of entire work | No. 3 did 6 per cent of entire work |

| | | |
|-----|---|---|
| 104 | Anesthetist Random did 62 75 per cent of entire work | Random did 71 75 per cent of entire work |
| 105 | Special did 2 75 per cent of entire work | Special did 20 75 per cent of entire work |
| 106 | Not recorded, 2 5 per cent of entire work | Not recorded, 2 5 per cent of entire work |

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| 107 | Peritoneal catheter In 24 5 per cent | In 24 6 per cent |
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| 108 | Additional and normal drainage In 8 per cent | In 10 per cent |
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| 109 | Incision Longitudinal in 40 per cent | Longitudinal in 40 per cent |
|-----|---|-----------------------------|

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|-----|---------------------------|---------------------------|
| 110 | Transverse in 40 per cent | Transverse in 40 per cent |
|-----|---------------------------|---------------------------|

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|-----|------------------------|------------------------|
| 111 | Primary in 40 per cent | Primary in 40 per cent |
|-----|------------------------|------------------------|

| | | |
|-----|--------------------------|--------------------------|
| 112 | Secondary in 40 per cent | Secondary in 40 per cent |
|-----|--------------------------|--------------------------|

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| 113 | 40 | 40 |
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| | | |
|-----|-------------------------------|-------------------------------|
| 114 | 20 years of work, 40 per cent | 20 years of work, 40 per cent |
|-----|-------------------------------|-------------------------------|

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|-----|-----------------------------|-----------------------------|
| 115 | Under 15 years, 40 per cent | Under 15 years, 40 per cent |
|-----|-----------------------------|-----------------------------|

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|-----|---------------------------|---------------------------|
| 116 | Not recorded, 40 per cent | Not recorded, 40 per cent |
|-----|---------------------------|---------------------------|

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|-----|--------------------------------------|--------------------------------------|
| 117 | Primary and secondary 40 per cent | Primary and secondary 40 per cent |
|-----|--------------------------------------|--------------------------------------|

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| 118 | 40 | 40 |
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| 119 | 40 | 40 |
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| 120 | 40 | 40 |
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|-----|----|----|
| 265 | 40 | 40 |
|-----|----|----|

| | | |
|-----|----|----|
| 266 | 40 | 40 |
|-----|----|----|

| | | |
|-----|----|----|
| 267 | 40 | 40 |
|-----|----|----|

| | | |
|-----|----|----|
| 268 | 40 | 40 |
|-----|----|----|

| | | |
|-----|----|----|
| 269 | 40 | 40 |
|-----|----|----|

| | | |
|-----|----|----|
| 270 | 40 | 40 |
|-----|----|----|

| |
|-----|
| 271 |
|-----|

may exert in preventing emesis, it is entirely the result of its action in stimulating peristalsis thereby lessening intestinal distention to which emesis at times is due.

TIME OF ETHERIZATION AND ITS RELATION TO POSTOPERATIVE EMESIS

A study of the laparotomized groups 2 and 3 with respect to the relationship between time of etherization and postoperative emesis cannot be made with the same satisfaction as the non-laparotomized group (group 1) because of the introduction in the laparotomized groups of the element of peritoneal trauma.

However a study of the first four divisions of groups 2 and 3 (divisions which constitute collectively 91.5 per cent and 90.2 per cent of their respective groups) corroborate the finding in the study of group 1 with respect to the relationship between the time of etherization and the duration of postoperative emesis—namely that the element of time *per se* has little or no influence as a factor in extending the duration of postoperative emesis.

It is self-evident that the influence of time in division 1 of groups 2 and 3 could have had no possible bearing upon the question of emesis in this division as no emesis occurred

3
1.1

per cent of cases which were etherized two or more hours and a difference of only 1 per cent of cases which were etherized less than 2 hours.

The difference in percentage is here so little and the difference in percentage with respect to emesis is so small, namely 4 per cent, that this division may be left out of consideration in our analysis.

In division 3 of group 2 we find that there was 36.9 per cent of cases which were anesthetized 2 hours or more as compared to 18.3 per cent in the corresponding division of group 3 and in division 4 of group 2 we find that there was 41.3 per cent of cases which were anesthetized 2 hours or more as compared to 24.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases, which were under ether

TABLE XL—TIME OF ETHERIZATION IN THE FIRST FOUR DIVISIONS OF GROUPS 2 AND 3

| DIVISION 1 | | |
|--------------------|----------------|------------------------|
| Group 2—108 Cases | | |
| T | hours and over | 23.9 per cent of cases |
| Less than | 2 hours | 76.1 per cent of cases |
| Group 3—46 Cases | | |
| Two hours and over | | 36.9 per cent of cases |
| Less than 2 hours | | 73.1 per cent of cases |
| DIVISION 2 | | |
| Group 2—170 Cases | | |
| Two hours and over | | 25.3 per cent of cases |
| Less than 2 hours | | 74.7 per cent of cases |
| Group 3—145 Cases | | |
| Two hours and over | | 27.7 per cent of cases |
| Less than 2 hours | | 72.3 per cent of cases |
| DIVISION 3 | | |
| Group 2—50 Cases | | |
| Two hours and over | | 36.9 per cent of cases |
| Less than 2 hours | | 63.1 per cent of cases |
| Group 3—71 Cases | | |
| Two hours and over | | 8.3 per cent of cases |
| Less than 2 hours | | 7.7 per cent of cases |
| DIVISION 4 | | |
| Group 2—59 Cases | | |
| T | hours and over | 41.3 per cent of cases |
| Less than 2 hours | | 58.7 per cent of cases |
| Group 3—65 Cases | | |
| T | hours and over | 24.6 per cent of cases |
| Less than 2 hours | | 75.6 per cent of cases |

hours or more in divisions 3 and 4 of group 3, was smaller than in the corresponding division of group 2 yet the percentage of postoperative

emesis was 19.4 per cent and 7.3 per cent as compared to 17.7 per cent.

In division 3 of group 2 we find that there was 63.1 per cent of cases which were anesthetized between 1 and 2 hours as compared to 81.7 per cent in the corresponding division of group 3 and in division 4 of group 2 we find that there was 58.7 per cent of cases which were anesthetized between 1 and 2 hours as compared to 75.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases which were under ether between 1 and 2 hours of divisions 3 and 4 of

TABLE XII
DIVISION 1

Group 2
Supernormal hysterectomy
Partial hysterectomy
Hysterectomy
Adhesions and appendicitis
Resection of intestine
Lymphadenitis
Myometritis

Group 3
Supernormal hysterectomy
Partial hysterectomy
Hysterectomy
Adhesions and appendicitis
Myometritis

DIVISION 2

Group 1
Supernormal hysterectomy
Partial hysterectomy
Hysterectomy
Adhesions and appendicitis
Lymphadenitis
Myometritis
(central hernia)

Group 3
Supernormal hysterectomy
Partial hysterectomy
Hysterectomy
Adhesions and appendicitis
Lymphadenitis
(central hernia)

DIVISION 3

Group
Supernormal hysterectomy
Partial hysterectomy
Hysterectomy
Adhesions and appendicitis
Myometritis
(central hernia)

Group 3
Supernormal hysterectomy
Partial hysterectomy
Hysterectomy
Adhesions and appendicitis
Myometritis
Lymphadenitis

DIVISION 4

Group
Supernormal hysterectomy
Partial hysterectomy
Hysterectomy
Adhesions and appendicitis
Myometritis

Group 3
Supernormal hysterectomy
Partial hysterectomy
Hysterectomy
Adhesions and appendicitis
Myometritis
Hernia

TABLE XIII—COMPARATIVE STUDY OF OPERATORS ANESTHETISTS ETC.

| | | | | | |
|--|----|---|---|--|--|
| Operators | | In group 1—rubber pad | | In group 2—green pad | |
| 46 | 46 | did 85 per cent of entire work | X | did 70 per cent of entire work | |
| 36 | 36 | did 25 per cent of entire work | X | did 20 per cent of entire work | |
| 36 | 36 | did 6 per cent of entire work | | | |
| Anesthetists | | Resident did 82.75 per cent of entire work | | Resident did 77.7 per cent of entire work | |
| 46 | 46 | Special did 15.75 per cent of entire work | | Special did 20.75 per cent of entire work | |
| 36 | 36 | Not recorded, 2.5 per cent of entire work | | Not recorded, 2.5 per cent of entire work | |
| 36 | 36 | Personal attendance 10.75 per cent | | 10.75 per cent | |
| Adhesions and internal drainage | | In 5 per cent | | In 5 per cent | |
| 46 | 46 | Incision 10.75 per cent | | Incision 10.75 per cent | |
| 36 | 36 | Incision 10.75 per cent | | Incision 10.75 per cent | |
| 36 | 36 | Clamp 10.75 per cent | | Clamp 10.75 per cent | |
| 36 | 36 | Primary 10.75 per cent | | Primary 10.75 per cent | |
| 36 | 36 | Secondary 10.75 per cent | | Secondary 10.75 per cent | |
| Drain | | 4 years or over, 15 per cent | | 4 years or over, 15 per cent | |
| 46 | 46 | Under 3 years, 75 per cent | | Under 3 years, 75 per cent | |
| 36 | 36 | Not recorded, 15 per cent | | Not recorded, 15 per cent | |
| Prostate and ureter | | Ward—15 per cent | | Ward—15 per cent | |
| 46 | 46 | Prostate—15 per cent | | Prostate—15 per cent | |
| 36 | 36 | Ureter—15 per cent | | Ureter—15 per cent | |
| 36 | 36 | Not recorded, 15 per cent | | Not recorded, 15 per cent | |
| First day post op | | 1st day post op 10 per cent | | 1st day post op 10 per cent | |
| 46 | 46 | 2nd day post op 10 per cent | | 2nd day post op 10 per cent | |
| 36 | 36 | 3rd day post op 10 per cent | | 3rd day post op 10 per cent | |
| 36 | 36 | 4th day post op 10 per cent | | 4th day post op 10 per cent | |
| Not administered | | Not administered | | Not administered | |
| 46 | 46 | 1st day post op 10 per cent | | 1st day post op 10 per cent | |
| 36 | 36 | 2nd day post op 10 per cent | | 2nd day post op 10 per cent | |
| 36 | 36 | 3rd day post op 10 per cent | | 3rd day post op 10 per cent | |
| 36 | 36 | 4th day post op 10 per cent | | 4th day post op 10 per cent | |

That is in divisions 3 and 4 of group 2 there was a greater percentage of cases which were etherized 2 hours or more with a less percentage of postoperative vomiting respecting days than in the corresponding division of group 3 while in divisions 3 and 4 of group 3 there was a greater percentage of cases etherized less than 2 hours with a greater percentage of postoperative emesis than in the corresponding divisions of group 2

A STUDY OF THE CHARACTER OF OPERATION IN THE TWO GROUPS WITH RESPECT TO THEIR INFLUENCE UPON EMESIS

As it might be argued that the character of operation influences postoperative results with respect to emesis it will be necessary to study the character of operation in the two groups. Groups 2 and 3 constitute 91.5 per cent and 90.2 per cent of their respective groups they are

group 2 was larger than group 3
the percentage of cases which were etherized 2 hours or more with a less percentage of postoperative vomiting respecting days than in the corresponding division of group 3 while in divisions 3 and 4 of group 3 there was a greater percentage of cases etherized less than 2 hours with a greater percentage of postoperative emesis than in the corresponding divisions of group 2

may exert in preventing emesis, it is entirely the result of its action in stimulating peristalsis, thereby lessening intestinal distention to which emesis at times is due.

TIME OF ETHERIZATION AND ITS RELATION TO POSTOPERATIVE EMESIS

A study of the laparotomized groups 2 and 3 with respect to the relationship between time of etherization and postoperative emesis cannot be made with the same satisfaction as the non-laparotomized group (group 1) because of the introduction in the laparotomized groups of the element of peritoneal trauma.

However a study of the first four divisions of groups 2 and 3 (divisions which constitute collectively 91.5 per cent and 90.2 per cent of their respective groups) corroborate the finding in the study of group 1 with respect to the relationship between the time of etherization and the duration of postoperative emesis—namely that the element of time *per se* has little or no influence as a factor in extending the duration of postoperative emesis.

It is self-evident that the influence of time in division 1 of groups 2 and 3 could have had no possible bearing upon the question of emesis in this division, as no emesis occurred

3
1 1

per cent of cases which were etherized two or more hours and a difference of only 1 per cent of cases which were etherized less than 2 hours.

The difference in percentage is here so little and the difference in percentage with respect to emesis is so small, namely 4 per cent, that this division may be left out of consideration in our analysis.

In division 3 of group 2 we find that there was 36.9 per cent of cases which were ana-

that there was 41.3 per cent of cases which were anesthetized 2 hours or more as compared to 24.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases, which were under ether

TABLE XL—TIME OF ETHERIZATION IN THE FIRST FOUR DIVISIONS OF GROUPS 2 AND 3

| DIVISION 1 | |
|--------------------|------------------------|
| Group 2—105 Cases | |
| Two hours and over | 21.9 per cent of cases |
| Less than 2 hours | 78.1 per cent of cases |
| Group 3—46 Cases | |
| Two hours and over | 19.0 per cent of cases |
| Less than 2 hours | 77.0 per cent of cases |
| DIVISION 2 | |
| Group 2—179 Cases | |
| Two hours and over | 28.5 per cent of cases |
| Less than 2 hours | 71.5 per cent of cases |
| Group 3—145 Cases | |
| Two hours and over | 27.7 per cent of cases |
| Less than 2 hours | 72.3 per cent of cases |
| DIVISION 3 | |
| Group 2—30 Cases | |
| Two hours and over | 36.0 per cent of cases |
| Less than 2 hours | 64.0 per cent of cases |
| Group 3—71 Cases | |
| Two hours and over | 28.3 per cent of cases |
| Less than 2 hours | 71.7 per cent of cases |
| DIVISION 4 | |
| Group 2—39 Cases | |
| Two hours and over | 41.3 per cent of cases |
| Less than 2 hours | 58.7 per cent of cases |
| Group 3—65 Cases | |
| Two hours and over | 24.6 per cent of cases |
| Less than 2 hours | 75.4 per cent of cases |

hours or more in divisions 3 and 4 of group 3 was smaller than in the corresponding division of group 2 yet the percentage of postoperative

compared to 19.4 per cent and 7.3 per cent as compared to 17.7 per cent.

In division 3 of group 2 we find that there was 63.1 per cent of cases which were ana-

1
which were anesthetized between 1 and 2 hours as compared to 75.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases which were under ether between 1 and 2 hours of divisions 3 and 4 of

TABLE XII
DIVISION 1

Group 1

Supravaginal hysterectomy
Partial hysterectomy
Retroperitoneum
Adrenal and appendicectomy
Laparotomy
Myomectomy

Group 2

Supravaginal hysterectomy
Partial hysterectomy
Retroperitoneum
Adrenal and appendicectomy
Laparotomy

DIVISION 2

Group 1

Supravaginal hysterectomy
Partial hysterectomy
Retroperitoneum
Adrenal and appendicectomy
Laparotomy
Myomectomy
Vaginal hysterectomy

Group 2

Supravaginal hysterectomy
Partial hysterectomy
Retroperitoneum
Adrenal and appendicectomy
Laparotomy
Myomectomy
Vaginal hysterectomy

DIVISION 3

Group 1

Supravaginal hysterectomy
Partial hysterectomy
Retroperitoneum
Adrenal and appendicectomy
Laparotomy
Myomectomy
Vaginal hysterectomy

Group 2

Supravaginal hysterectomy
Partial hysterectomy
Retroperitoneum
Adrenal and appendicectomy
Laparotomy
Myomectomy
Vaginal hysterectomy

DIVISION 4

Group 1

Supravaginal hysterectomy
Partial hysterectomy
Retroperitoneum
Adrenal and appendicectomy
Laparotomy
Myomectomy

Group 2

Supravaginal hysterectomy
Partial hysterectomy
Retroperitoneum
Adrenal and appendicectomy
Laparotomy
Myomectomy

TABLE XIII—COMPARATIVE STUDY OF OPERATIONS ANESTHETISTS, ETC

| Operation | In group 2—etherized full work | In group 3—etherized full work |
|-----------|----------------------------------|---|
| No. 1 | 40 6 per cent of etherized work | No. 1 40 70 per cent of etherized work |
| No. 2 | 40 22 per cent of etherized work | No. 2 40 30 per cent of etherized work |
| No. 3 | 40 6 per cent of etherized work | No. 3 40 6 per cent of etherized work |
| No. 4 | 40 12 per cent of etherized work | No. 4 40 12 per cent of etherized work |
| No. 5 | 40 22 per cent of etherized work | No. 5 40 22 per cent of etherized work |
| No. 6 | 40 22 per cent of etherized work | No. 6 40 22 per cent of etherized work |
| No. 7 | 40 22 per cent of etherized work | No. 7 40 22 per cent of etherized work |
| No. 8 | 40 22 per cent of etherized work | No. 8 40 22 per cent of etherized work |
| No. 9 | 40 22 per cent of etherized work | No. 9 40 22 per cent of etherized work |
| No. 10 | 40 22 per cent of etherized work | No. 10 40 22 per cent of etherized work |
| No. 11 | 40 22 per cent of etherized work | No. 11 40 22 per cent of etherized work |
| No. 12 | 40 22 per cent of etherized work | No. 12 40 22 per cent of etherized work |
| No. 13 | 40 22 per cent of etherized work | No. 13 40 22 per cent of etherized work |
| No. 14 | 40 22 per cent of etherized work | No. 14 40 22 per cent of etherized work |
| No. 15 | 40 22 per cent of etherized work | No. 15 40 22 per cent of etherized work |
| No. 16 | 40 22 per cent of etherized work | No. 16 40 22 per cent of etherized work |
| No. 17 | 40 22 per cent of etherized work | No. 17 40 22 per cent of etherized work |
| No. 18 | 40 22 per cent of etherized work | No. 18 40 22 per cent of etherized work |
| No. 19 | 40 22 per cent of etherized work | No. 19 40 22 per cent of etherized work |
| No. 20 | 40 22 per cent of etherized work | No. 20 40 22 per cent of etherized work |
| No. 21 | 40 22 per cent of etherized work | No. 21 40 22 per cent of etherized work |
| No. 22 | 40 22 per cent of etherized work | No. 22 40 22 per cent of etherized work |
| No. 23 | 40 22 per cent of etherized work | No. 23 40 22 per cent of etherized work |
| No. 24 | 40 22 per cent of etherized work | No. 24 40 22 per cent of etherized work |
| No. 25 | 40 22 per cent of etherized work | No. 25 40 22 per cent of etherized work |
| No. 26 | 40 22 per cent of etherized work | No. 26 40 22 per cent of etherized work |
| No. 27 | 40 22 per cent of etherized work | No. 27 40 22 per cent of etherized work |
| No. 28 | 40 22 per cent of etherized work | No. 28 40 22 per cent of etherized work |
| No. 29 | 40 22 per cent of etherized work | No. 29 40 22 per cent of etherized work |
| No. 30 | 40 22 per cent of etherized work | No. 30 40 22 per cent of etherized work |
| No. 31 | 40 22 per cent of etherized work | No. 31 40 22 per cent of etherized work |
| No. 32 | 40 22 per cent of etherized work | No. 32 40 22 per cent of etherized work |
| No. 33 | 40 22 per cent of etherized work | No. 33 40 22 per cent of etherized work |
| No. 34 | 40 22 per cent of etherized work | No. 34 40 22 per cent of etherized work |
| No. 35 | 40 22 per cent of etherized work | No. 35 40 22 per cent of etherized work |
| No. 36 | 40 22 per cent of etherized work | No. 36 40 22 per cent of etherized work |
| No. 37 | 40 22 per cent of etherized work | No. 37 40 22 per cent of etherized work |
| No. 38 | 40 22 per cent of etherized work | No. 38 40 22 per cent of etherized work |
| No. 39 | 40 22 per cent of etherized work | No. 39 40 22 per cent of etherized work |
| No. 40 | 40 22 per cent of etherized work | No. 40 40 22 per cent of etherized work |

group 3 was larger than in the corresponding divisions of group 2 yet the percentage of

That is in divisions 3 and 4 of group 2 there was a greater percentage of cases which were etherized 2 hours or more with a less percentage of postoperative vomiting respecting days than in the corresponding division of group 3 while in divisions 3 and 4 of group 3 there was a greater percentage of cases etherized less than 2 hours with a greater percentage of postoperative emesis than in the corresponding divisions of group 2

4 STUDY OF THE CHARACTER OF OPERATION IN THE TWO GROUPS WITH RESPECT TO THEIR INFLUENCE UPON EMESIS

As it might be argued that the character of operation influences postoperative results with respect to emesis it will be necessary to compare the character and number of operations in the different divisions of the two groups. As the first four divisions of groups 2 and 3 constitute 91.5 per cent and 90.2 per cent of their respective groups they are

TABLE XL.—TIME OF ETHERIZATION IN THE FIRST FOUR DIVISIONS OF GROUPS 2 AND 3

which emesis at times is due.

TIME OF ETHERIZATION AND ITS RELATION TO POSTOPERATIVE EMESIS

A study of the laparotomized groups 2 and 3 with respect to the relationship between time of etherization and postoperative emesis cannot be made with the same satisfaction as the non-laparotomized group (group 1) because of the introduction in the laparotomized groups of the element of peritoneal trauma.

However a study of the first four divisions of groups 2 and 3 (divisions which constitute collectively 91.5 per cent and 90.2 per cent of their respective groups) corroborate the finding in the study of group 1 with respect to the relationship between the time of etherization and the duration of postoperative emesis—namely that the element of time *per se*, has little or no influence as a factor in extending the duration of postoperative emesis.

It is self-evident that the influence of time in division 1 of groups 2 and 3 could have had no possible bearing upon the question of emesis in this division, as no emesis occurred

2 and 3
only 1.1

—

The difference in percentage is here so little and the difference in percentage with respect to emesis is so small namely 4 per cent, that this division may be left out of consideration in our analysis.

In division 3 of group 2 we find that there was 36.9 per cent of cases which were anesthetized 2 hours or more as compared to 18.3 per cent in the corresponding division of group 3 and in division 4 of group 2 we find that there was 41.3 per cent of cases which were anesthetized 2 hours or more as compared to 24.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases, which were under ether 2

| DIVISION 1 | |
|--------------------|------------------------|
| Group 2—105 Cases | |
| Two hours and over | 23.9 per cent of cases |
| Less than 2 hours | 76.1 per cent of cases |

| Group 3—45 Cases | |
|--------------------|------------------------|
| Two hours and over | 28.9 per cent of cases |
| Less than 2 hours | 71.0 per cent of cases |

| DIVISION 2 | |
|-------------------|------------------------|
| Group 2—179 Cases | |
| 2 hours and over | 25.7 per cent of cases |
| Less than 2 hours | 74.3 per cent of cases |

| Group 3—148 Cases | |
|-------------------|------------------------|
| 2 hours and over | 27.7 per cent of cases |
| Less than 2 hours | 72.3 per cent of cases |

| DIVISION 3 | |
|-------------------|------------------------|
| Group 2—50 Cases | |
| 2 hours and over | 36.0 per cent of cases |
| Less than 2 hours | 64.0 per cent of cases |

| Group 3—7 Cases | |
|-------------------|------------------------|
| 2 hours and over | 85.7 per cent of cases |
| Less than 2 hours | 14.3 per cent of cases |

| DIVISION 4 | |
|-------------------|------------------------|
| Group 2—29 Cases | |
| 2 hours and over | 41.3 per cent of cases |
| Less than 2 hours | 58.7 per cent of cases |

| Group 3—45 Cases | |
|-------------------|------------------------|
| 2 hours and over | 24.6 per cent of cases |
| Less than 2 hours | 75.4 per cent of cases |

hours or more in divisions 3 and 4 of group 3 was smaller than in the corresponding division

compared to 19.4 per cent and 7.3 per cent as compared to 27.7 per cent.

In division 3 of group 2 we find that there was 63.1 per cent of cases which were anesthetized

find that there was 58.7 per cent of cases which were anesthetized between 1 and 2 hours as compared to 75.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases which were under ether between 1 and 2 hours of divisions 3 and 4 of

TABLE XII
DIVISION I

Group 1

Suprapigmal hysterectomy
Partial hysterectomy
Rectovaginal
Advent and appendical
Myomectomy

Group 2

DIVISION 2

Group

Suprapigmal hysterectomy
Partial hysterectomy
Rectovaginal
Advent and appendical
Exploratory
Myomectomy
Vaginal incision

Group 3

Suprapigmal hysterectomy
Partial hysterectomy
Rectovaginal
Advent and appendical
Exploratory
Myomectomy
Vaginal incision

DIVISION 3

Group

Suprapigmal hysterectomy
Partial hysterectomy
Rectovaginal
Advent and appendical
Myomectomy
Vaginal incision

Group 4

Suprapigmal hysterectomy
Partial hysterectomy
Rectovaginal
Advent and appendical
Myomectomy
Exploratory

DIVISION 4

Group

Suprapigmal hysterectomy
Partial hysterectomy
Rectovaginal
Advent and appendical
Myomectomy

Group 5

Suprapigmal hysterectomy
Partial hysterectomy
Rectovaginal
Advent and appendical
Myomectomy
Vaginal

TABLE XIII—COMPARATIVE STUDY OF OPERATIONS, ANESTHETISTS ETC

| Operator | In group 1—rubber pad | In group 2—gauze pad |
|----------|-----------------------|----------------------|
| | | |
| 36 | 36 | 36 |
| 37 | 37 | 37 |
| 38 | 38 | 38 |
| 39 | 39 | 39 |
| 40 | 40 | 40 |
| 41 | 41 | 41 |
| 42 | 42 | 42 |
| 43 | 43 | 43 |
| 44 | 44 | 44 |
| 45 | 45 | 45 |
| 46 | 46 | 46 |
| 47 | 47 | 47 |
| 48 | 48 | 48 |
| 49 | 49 | 49 |
| 50 | 50 | 50 |
| 51 | 51 | 51 |
| 52 | 52 | 52 |
| 53 | 53 | 53 |
| 54 | 54 | 54 |
| 55 | 55 | 55 |
| 56 | 56 | 56 |
| 57 | 57 | 57 |
| 58 | 58 | 58 |
| 59 | 59 | 59 |
| 60 | 60 | 60 |
| 61 | 61 | 61 |
| 62 | 62 | 62 |
| 63 | 63 | 63 |
| 64 | 64 | 64 |
| 65 | 65 | 65 |
| 66 | 66 | 66 |
| 67 | 67 | 67 |
| 68 | 68 | 68 |
| 69 | 69 | 69 |
| 70 | 70 | 70 |
| 71 | 71 | 71 |
| 72 | 72 | 72 |
| 73 | 73 | 73 |
| 74 | 74 | 74 |
| 75 | 75 | 75 |
| 76 | 76 | 76 |
| 77 | 77 | 77 |
| 78 | 78 | 78 |
| 79 | 79 | 79 |
| 80 | 80 | 80 |
| 81 | 81 | 81 |
| 82 | 82 | 82 |
| 83 | 83 | 83 |
| 84 | 84 | 84 |
| 85 | 85 | 85 |
| 86 | 86 | 86 |
| 87 | 87 | 87 |
| 88 | 88 | 88 |
| 89 | 89 | 89 |
| 90 | 90 | 90 |
| 91 | 91 | 91 |
| 92 | 92 | 92 |
| 93 | 93 | 93 |
| 94 | 94 | 94 |
| 95 | 95 | 95 |
| 96 | 96 | 96 |
| 97 | 97 | 97 |
| 98 | 98 | 98 |
| 99 | 99 | 99 |
| 100 | 100 | 100 |

That is in divisions 3 and 4 of group 2 there was a greater percentage of cases which were etherized 2 hours or more with a less percentage of postoperative vomiting respecting data than in the corresponding division of group 3 while in divisions 3 and 4 of group 3 there was a greater percentage of cases etherized less than 2 hours with a greater percentage of postoperative emesis than in the corresponding divisions of group 2

A STUDY OF THE CHARACTER OF OPERATION IN THE TWO GROUPS WITH RESPECT TO THEIR INFLUENCE UPON EMESIS

As it might be argued that the character of operation influences postoperative results with respect to emesis it will be necessary to

group 3 was larger than in the corresponding divisions of group 1 yet the percentage of

may exert in preventing emesis, it is entirely the result of its action in stimulating peristalsis thereby lessening intestinal distention to which emesis at times is due.

TIME OF ETHERIZATION AND ITS RELATION TO POSTOPERATIVE EMESIS

A study of the laparotomized groups 2 and 3 with respect to the relationship between time of etherization and postoperative emesis cannot be made with the same satisfaction as the non-laparotomized group (group 1) be cause of the introduction in the laparotomized groups of the element of peritoneal trauma.

However a study of the first four divisions of groups 2 and 3 (divisions which constitute collectively 91.5 per cent and 90.8 per cent of their respective groups) corroborate the finding in the study of group 1 with respect to the relationship between the time of etherization and the duration of postoperative emesis—namely that the element of time *per se* has little or no influence as a factor in extending the duration of postoperative emesis.

It is self-evident that the influence of time

in this division of either group.

In comparing division 2 of groups 2 and 3 we find that there is a difference of only 1.1 per cent of cases which were etherized two or more hours and a difference of only 1 per cent of cases which were etherized less than 2 hours.

The difference in percentage is here so little and the difference in percentage with respect to emesis is so small, namely 4 per cent, that this division may be left out of consideration in our analysis.

In division 3 of group 2 we find that there was 36.9 per cent of cases which were anesthetized 2 hours or more as compared to 18.3 per cent in the corresponding division of group 3 and in division 4 of group 2 we find that there was 41.3 per cent of cases which were anesthetized 2 hours or more as compared to 34.6 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases, which were under ether

TABLE XI.—TIME OF ETHERIZATION IN THE FIRST FOUR DIVISIONS OF GROUPS 2 AND 3

| DIVISION 1 | | |
|--------------------|----|---------------------|
| Group 2—103 Cases | | |
| Two hours and over | 21 | 9 per cent of cases |
| Less than 2 hours | 70 | 1 per cent of cases |
| Group 3—46 Cases | | |
| Two hours and over | 23 | 9 per cent of cases |
| Less than 2 hours | 7 | 0 per cent of cases |
| DIVISION 2 | | |
| Group 2—70 Cases | | |
| Two hours and over | 28 | 7 per cent of cases |
| Less than 2 hours | 71 | 3 per cent of cases |
| Group 3—148 Cases | | |
| Two hours and over | 27 | 7 per cent of cases |
| Less than 2 hours | 73 | 3 per cent of cases |
| DIVISION 3 | | |
| Group 2—30 Cases | | |
| Two hours and over | 35 | 9 per cent of cases |
| Less than 2 hours | 63 | 1 per cent of cases |
| Group 3—71 Cases | | |
| Two hours and over | 8 | 3 per cent of cases |
| Less than 2 hours | 71 | 7 per cent of cases |
| DIVISION 4 | | |
| Group 2—20 Cases | | |
| Two hours and over | 4 | 3 per cent of cases |
| Less than 2 hours | 16 | 7 per cent of cases |
| Group 3—65 Cases | | |
| Two hours and over | 21 | 8 per cent of cases |
| Less than 2 hours | 75 | 6 per cent of cases |

hours or more in divisions 3 and 4 of group 3 was smaller than in the corresponding divisions

compared to 29.4 per cent and 7.3 per cent as compared to 17.7 per cent.

In division 3 of group 2 we find that there was 63.1 per cent of cases which were anesthetized between 1 and 2 hours as compared to 81.7 per cent in the corresponding division of group 3 and in division 4 of group 2 we find that there was 58.7 per cent of cases which were anesthetized between 1 and 2 hours as compared to 56 per cent in the corresponding division of group 3.

Here it will be seen that though the percentage of cases which were under ether between 1 and 2 hours of divisions 3 and 4 of



Fig. 6. Photograph showing rubber envelop, towel pad, and pad complete

divisions in which vomiting occurred on and after the first day or only after the first day

Second divisions 1 and 2 of group 2 divisions in which vomiting either did not occur or occurred only during the first day constitutes 71.7 per cent of the entire group as contrasted with 28.3 per cent of the remaining 6 divisions in which vomiting occurred on and after the first day or only after the first day

Third divisions 1 and 2 of group 3 divisions in which vomiting did not occur or occurred only during the first day constitute 53.1 per cent of the entire group as contrasted to 46.9 per cent of the remaining 6 divisions in which vomiting occurred on and after the first day or after the first day only

Finally group 1 determines the normal limitations of postoperative emesis with respect to time and is the standard for reference. In contrasting the other groups with group 1 it will be seen that group 3 approximates more nearly the standard than does group 2

DESCRIPTION OF RUBBER ENVELOP PADS

The rubber envelop pads consist of two parts an envelop and a pad. The envelop is made of thin rubber tissue and the pad is made of toweling material sewed together in such a manner as to give firmness and resistance. A loop of narrow tape 10 inches or more in length is sewed to the upper border of

the cloth pad. When the cloth pad is placed in the envelop the loop of tape is passed through re-enforced holes located on the upper margins of the rubber envelop. By this means the envelop is closed and the pad prevented from escaping. An iron ring is attached to the free end of the loop of tape for the purpose of indicating the presence of a pad in the cavity. Three pads two large and one small constitute a set the larger are 8 by 8 inches and the smaller 8 by 4 inches.

The rubber envelop pads are used intra-abdominally in the place of gauze pads. Whether the patient is placed in Trendelenburg's position or not, the intestines should be pushed above the iliopectineal line before introducing the pads the abdominal wall is then lifted with a retractor and one of the large pads folded lengthwise is placed in the

true pelvis. The small pad is again used when the peritoneal layer of the wound is being sutured to keep the intestines from the field of work. It can be removed through a very small opening without traumatizing the peritoneum in the region of the wound.

Gauze pads should never be used in the envelopes as substitutes for towel pad as they do not furnish the required firmness and resistance to keep the intestines away from the field of operation.

sufficient in number and percentage to determine the point in question.

A review of Table VII will convince one that all operations, except panhysterectomy are in fair proportion, represented in the several divisions of the two groups. It is generally conceded that panhysterectomy is a grave operation and frequently followed by stormy convalescence yet in divisions 1 and 2 of group 2 (divisions in which emesis when occurring did not exceed 24 hours) there is

divisions 3 and 4. In the same divisions in group 3 there was 11.7 per cent as compared to 14.6 per cent. This table furnishes sufficient evidence, it would seem to show that neither the character nor the gravity of the operation influences necessarily postoperative results regarding emesis.

CONCLUSIONS REGARDING LAPAROTOMIZED CASES

1. In 400 successive laparotomized patients, the use of rubber envelop pads resulted in freedom from vomiting in practically the same proportion as in the non-laparotomized patients.

2. Comparing nearly equal numbers of laparotomized cases under approximately

escaping vomiting to reduce 2 days vomiting by one third to cut 3 days vomiting 60 per cent and to lessen distention by two-thirds.

3. The dominant factors in the causation of emesis in laparotomized cases are ether and trauma of the peritoneum of the intestines and while the influence of ether is only 24 hours, the influence of intestinal peritoneal trauma may extend to 3 days or more.

4. Less vomiting, less distention and less morphine shows less trauma to the peritoneum.

DESCRIPTION OF DIAGRAMS OF COMPARATIVE PERCENTAGES OF VOMITING IN THE THREE GROUPS

In the diagrams (Figs 1 to 5) division 1 of each group the division in which no vomiting

occurred is designated by white. Division 2 of each group the division in which vomiting occurred on the first day only is designated in gray and the remaining 6 divisions are designated by black.

Comparing the divisions of group 2 (the group in which rubber envelop pads were used) with the divisions of group 1 (the non-laparotomized group) and with group 3 (in which gauze was used) we find that 27 per cent of group 2 division 1 did not vomit as compared to 26.7 per cent of group 1 (division 1) and 12.6 per cent of group 3 (division 1) therefore the number of laparotomized cases which did not vomit when rubber envelop pads were used was practically the same as

was used.

We find that 44.7 per cent of group 2 (division 2) vomited on the first day only as compared to 69.3 per cent of group 1 (division 2) and 40.3 per cent of group 3 (division 2) therefore the number of cases of group 2 which vomited on the first day only is about one-third less than those of group 1 and a little more than those of group 3.

The most striking contrast in the 6 remaining divisions of the two laparotomized groups (groups 2 and 3) is in division 3 in which vomiting occurred on the first and second days only and division 4 in which vomiting occurred on the first second and third days. Here we find that when rubber envelop pads were used 12.5 per cent vomited on the first and second days only as compared to 19.4

only and pads were used as compared to 17.7 per cent when gauze pads were used.

When the first 3 divisions of the three groups are considered collectively and contrasted with the remaining 6 divisions of their respective groups we find that—

First, the divisions 1 and 2 of group 1 divisions in which vomiting either did not occur or occurred only during the first day constitute 96 per cent of the entire group as contrasted with 4 per cent of the remaining 6

He vehemently advocates total removal. Leonard (2) who in 1913 reviewed the huge material of Johns Hopkins Hospital found only two stump cancers the first case appearing 18 years after a hysterectomy performed for pelvic inflammatory trouble. To these two cases may be added the one reported by Tyler (3) in 1915 as this patient also had the primary operation performed at Johns Hopkins. Only three cases from such an active service as that of Johns Hopkins are certainly few.

One of the main reasons for preferring supravaginal amputation to total hysterectomy is the smaller mortality of the former. The comparative mortality in experienced hands has been variously estimated as 2.6 per cent 6.6 per cent (Botzong, 4) to 1.5 per cent (Polak). Operation for uterine tumor is today performed by every casual operator. Unquestionably routine complete hysterectomy would at once elevate the mortality rate greatly and the number of non fatal injuries to the bladder ureter and rectum would rise proportionately. More over in Leonard's table (loc cit 2) one out of every four cases resulted not after removal for uterine tumor but after hysterectomy for pelvic infection. And finally Tyler (loc cit 3) was able to gather 13 cases of carcinoma of the vaginal vault following total hysterectomy. From this it becomes apparent that even complete hysterectomy does not afford an absolute guarantee of subsequent immunity from cancer of the remaining part of the genital tract.

That, in almost half of Leonard's collected cases, some 60 in all the cancer appeared within one year after the primary operation had been performed is evidence of superficial careless or unskilled examination in most instances. Only very rarely can the cancer be so small and insignificant as to escape searching scrutiny.

Coring out the cervical mucosa with the knife or cautery at the time of operation as advocated by Howard Kelly may be of some service and does not add to the risk. Careful specular examination of the cervix before undertaking the operation, will guard against overlooking a beginning cancer in almost all



Fig. 1. Direction of gross spread. The venous system by lymphatic and arterial.

instances. Excisions from suspicious areas of the cervix should be submitted to the pathologist for examination before operating.

In view of the fact that even total excision of the cervix may be followed by cancer of the vaginal vault that stump cancer occurs also after amputation for other conditions besides fibroids and that the mortality of total hysterectomy is higher than that for supravaginal removal, it appears unwise to advocate total hysterectomy as a routine measure. More emphasis on the other hand should be placed upon minute and searching examination of the cervix before operation, in order that an already present cancer may not be overlooked. It is also proper to warn the patient that vaginal bleeding or discharge occurring at any time after the operation even after years have elapsed (in Fehlin's case 5 the interval was 15 years in Leonard's case 2 18 years) should at once be reported.

METASTATIC CANCER IN THE APPENDIX

The subject is not mentioned in the text books of pathology (Aschoff Kaufmann, Ziegler DeLafeld and Prudden etc.) Howard

CANCER IN THE CERVICAL STUMP METASTASIS IN THE VERMIFORM APPENDIX

By ROBERT T FRANK A M M D F A C S DENVER, COLORADO

THE case here reported bears witness to the not infrequent misapplication of surgery a supravaginal hysterectomy for fibroids of the uterus is performed and a beginning cancer of the cervix is overlooked. The unique site of metastasis in the vermiform appendix is the main reason for putting the case on record. Secondary cancer of the appendix vermiformis has regularly resulted by continuity from the cæcum or by contiguity where the appendix has become adherent to malignant ovarian or other intra-peritoneal neoplasms or where a diffuse carcinosis of the peritoneum involved the appendix. None of these conditions obtained in the present instance.

She had been operated upon for fibroids, the attending physician was later communicated with and informed me that a supravaginal hysterectomy for fibromyoma of the uterus had been done. Five months later the patient was treated with radium for cancer of the cervix by some other physician.

On admission she complained of intolerable

physical examination proved negative. Below the umbilicus was a median abdominal scar at the lower end of which was a small sinus such as is due to a retained suture or ligature.

Pelvic examination showed a lax vagina the upper end of which ended in a crater formed by the cervix and bounded by the infiltrated adjacent lateral parametria. Until definite assurance of a previous hysterectomy was obtained, I believed

resorted to (passing rectal tube beyond the stricture, stupes, physostigmin, etc.) With great reluctance, a left colostomy was determined upon, but on

enterotomy and the abdomen closed. The patient did not react and died within 1 hour after comple

Careful dissection showed a cervix to which were attached the stumps of the round ligaments, the uterine ends of the fallopian tubes, and the utero-ovarian ligaments. The end of the abdominal sinus mentioned in connection with the scar ended in a small pocket containing a suture leading to the cervix.

The cancer had not broken into the peritoneal

proved negative

STUMP CANCER

Cancer developing in the cervical stump after supravaginal hysterectomy is now a well-recognized entity. The question as to whether total hysterectomy is therefore, preferable to supravaginal amputation has given rise to controversy. Polak (1) recently has collected 236 cases, after hysterectomy for fibroids, from American sources alone.

cinomata. The cells are smaller and less atypical the nuclei show little variation in size and shape are less rich in chromatin and comparatively free from mitotic figures."

The only other interpretation possible is that the appendicular tumor is primary and that two coincident independent neoplasms occurred in the patient. Multiple primary tumors in the same host are by no means unknown (9). However when two tumors agree exactly in their minute structure and when dissemination through regional retro-peritoneal lymphatic glands has already taken place a common origin may be accepted as proved beyond a reasonable doubt.

SUMMARY

The case reported is one of stump cancer noticed within 5 months after supravaginal hysterectomy for fibroids of the uterus. It is, therefore, fair to presume that the carcinoma was overlooked at the time of the operation.

Complete hysterectomy for fibroids of the uterus is not recommended as a routine measure, because of its increased mortality over supravaginal amputation.

Increased care in examining the cervix, before all operations for uterine conditions are undertaken is enjoined and it is suggested that the patients after operation be warned to note and report bleeding or abnormal discharge.

A metastasis in the non-adherent appendix is reported as a unique site of secondary deposit from cervical cancer.

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separating the cancer sheath; 5 cancer sheath invading the mucosa.

Fig. 4 (below left). Cancer sheath of appendicular tumor (high power). The carcinoma cells show the same stroma in size, shape, and structural qualities as the cells of the primary cervical growth.

A Kelly (6) in his book on *Appendicitis* says: "Secondary carcinoma is not uncommon occurring most frequently by direct invasion apparently more often by contiguity than by continuity of structure and occasionally by means of metastases." He cites extension from the caecum invasion by contiguity of an appendix adherent to malignant intraperitoneal growths such as ovarian cysts and involvement in the course of a general peritoneal carcinoma.

Search of the literature, especially that of the doubtful cases of so-called primary appendix carcinoma has failed to show a case

cancer of the type of the so-called carcinoma

appendicular tumor (Figs 3 and 4). Second I agree with Eli Moschowitz (8) who says: "In other respects, they (the solid appendix cancers) differ histologically from other car-



separating the cancer sheath, *g* cancer sheath around the musculature.

Fig. 4 (below left) Cancer sheath of appendicular tumor (high power). The carcinoma cells show the same variations in size shape and nuclear qualities as the cells of the primary cervical growth.

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cancer of the type of the so-called "carcinoid" growths, I classify this small neoplasm appearing in the wall of a free appendix close to its tip (Fig. 2) as a metastatic growth is twofold. First the morphology of the cervical growth is identical with that of the appendicular tumor (Figs. 3 and 4). Second, I agree with Eli Moschowitz (8) who says "In other respects they (i.e. solid appendix cancers) differ histologically from other car-

cinomata. The cells are smaller and less atypical, the nuclei show little variation in size and shape, are less rich in chromatin and comparatively free from mitotic figures."

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THE ASSOCIATED PATHOLOGY OF GALL-BLADDER DISEASE WITH A FURTHER PLEA FOR CHOLECYSTECTOMY¹

By FRANK D. MOORE, M.D. F.A.C.S. CHICAGO

IN the last year it would seem that interest in the gall bladder its diseases, its complications and its sequelae has been greatly stimulated as there have been many contributions to the literature of that subject and much discussion of it in medical meetings, conferences, etc. and many and varied have been the ideas presented. The interest aroused and the discussion provoked are alone proof of the incompleteness of our knowledge and an argument for further investigation. Through all this mass of literature however and through all the various discussions, certain conclusions seem to be coming inevitably to the fore namely:

The frequent occurrence of unsuspected gall

antopikes.

The discovery of infection or stones in the gall bladder with the subsequent eliciting of a history of long-continued obscure symptoms, usually referable to the stomach and often

because of the primary trouble and to prevent the occurrence of secondary pathology.

The importance of routine examination of the gall bladder whenever possible in any abdominal operation for other pathology.

The growing preference for cholecystectomy over cholecystostomy as the operation *par excellence* because of the growing realization of its safety in the hands of a competent operator as well as because of its undoubted superiority in preventing the recurrence of symptoms.

Of the etiology of diseases of the gall bladder little has been added recently to our

fund of knowledge the idea of focal infections being at present very much in prominence, while other factors are—functional or secretory disturbances of the liver typhoid bacilli diminution of the flow of bile from the gall bladder mechanical obstructions not sufficient to produce jaundice, etc. A number of cases are reported in the literature in which definite foci of infection have been found and

several cases of marked pyrexia, septic tonsils and chronic discharge of pus from the nasal cavity. The source of these infections may be hematogenous, through the portal circulation, or through the lymphatics. Undoubtedly the field of the etiology of gall-bladder disease is large and probably less explored than that of the symptomatology but with that field we are not dealing in this paper.

As to the symptomatology it seems now to

produced by them have not been referred to their correct source, but are variously ascribed to gastric disorders, indigestion, etc.

to the
in the
to gas-

tric ulcer carcinoma, or simple disturbances of the secretory function.

Distress in the epigastrium, a sense of fullness and discomfort rather than actual pain, flatulency—these are the beginning symptoms of latent gall-bladder disease and too often the ones least recognized as such. The later symptoms, those of pain in the right

may expect to find no simple, uncomplicated condition but always secondary pathology.

and it is with these secondary conditions, the so-called associated pathology of cholecystitis that we wish to deal here.

And if we have found the field of symptomatology wide, we will find that of the associated pathology tremendous. In a previous paper

taneously upon various parts of the body

the one most commonly found with gall-bladder disease is chronic appendicitis. From 30 to 40 per cent of cases have been found to be associated in this way. Often an acute attack of appendicitis is responsible for the discovery of gall-bladder disease, which might otherwise have remained indefinitely giving occasional warnings of its presence. It is true but for the most part unrecognized because of the vague and indefinite nature of its symptoms. As to whether the disease of the biliary tract is the primary condition, with a secondary infection of the appendix, or whether the reverse may be true, is of course

enters the gall bladder and ducts by way of the blood stream and lymphatics rarely by direct extension therefore it is to be expected that we should find gall-bladder disease usually coincident with some form or degree of hepatitis exclusive of abscess-formation. This may be very mild or it may amount to a true hepatic colic, with typical pain, fever

the vast majority of these cases of associated

most common abdominal pathology to be found and diagnosed in connection with cholecystitis there is another condition of even closer com-

the gall bladder as the primary focus of infection. The very chronicity of gall-bladder disease, with the slow growth of gall stones and the long periods of so-called "latency" tends to make this seem more probable. In either case it is undoubtedly

naturally because of its greater tendency to acute exacerbations and because it is so easily diagnosed even sometimes by the laity the appendix is frequently the one first to force its way into the limelight and to demand immediate attention. Always however is there not the possibility and even probability that early recognition and treatment of the gall-bladder condition would have prevented the secondary infection?

With the occurrence of gall-bladder disease we get often the whole train of symptoms referable to inadequate functioning of the large bowel stasis intestinal intoxications

is anatomically to that between cholecystitis and hepatitis. That is, the opening of the ducts of liver gall bladder and pancreas into one common duct or a practically in a position to infect mechanical damage can easily be done from increased pressure and interference with the proper flow of bile. This connection

is to state that certain forms of pancreatitis such as the chronic suppurative varieties and the acute hemorrhagic form are never found except in association with gall stones or infectious disease of the gall bladder

the long bones of a steer will answer the purpose. The bone is denuded of its periosteum cut to the proper size and boiled 3 consecutive days for 2 hours. The pegs are then kept in a sterile container and the peg needed for a given operation is resterilized with the instruments. It is of prime importance to fit the peg to the medullary canal and not to drill or gouge the canal in order that the peg may fit into it under no circumstances should bone marrow be curetted away as we thus deprive living bone of its chief blood supply. The graft must be in perfect contact with healthy vascular bone above and below. It must be of sufficient length to reach well into living bone and it must be immobilized in this position.

after the technique of Lane, does not present any difficulties. In order to divide the peg evenly between the proximal and distal fragments, three fourths of it may be introduced into the medullary cavity of one fragment and then, after alignment of the bone and introduction of the peg into the other fragment, one of two methods may be used to obtain the proper division of the graft and thus prevent the possibility of angulation. If a gap exists between the fragments the peg is pushed up or down the required distance by means of a mallet and chisel. If no gap is present an oblique hole is drilled over the long end of the peg into the medullary canal and the detached drill is used to punch the peg into place. Prior to alignment of the fragments both ends must be thoroughly freshened with the bone curette or chisel, and after immobilization of the peg the soft tissues must be closely coapted over the repaired bone to insure its close contact with free blood before closure of the skin. No dead spaces must be allowed between bone and muscle or fascia.

During the slow process of absorption and replacement of a bone graft there is relatively little strength to the graft and the limb must

from 12 to 24 months. This period is not sufficiently emphasized and undoubtedly accounts for the failures reported with either autogenous or heterogenous grafts.

Of the seventeen pegs, only one was removed to my knowledge. This case was a compound comminuted fracture of the right

bone too soon. acute osteomyelitis set in, and the patient drifted into the hands of another member of this society who removed the peg and finally obtained bony union. The other 16 cases and all of the ivory nails and screws were retained and well tolerated. All were observed from periods varying between 3 1/2 and 6 months. all obtained firm bony union with roentgenographic evidence of slow absorption of the foreign body.

It is useless to remind the members of this society of the difficulty of keeping track of County Hospital cases, and only recently has it been possible to stumble on one case which was operated upon in July 1915—almost 7 years ago—at which time a beef bone intramedullary peg was introduced in the lower third of the right femur. This was case No 570,178, Cook County Hospital.

of crutches or cases

Between June 18 and July 8, 1915 repeated attempts at reduction had been made, without any success, and my colleague Dr. Paul Moeck very courteously turned the case over to me for open

for what they termed a moderately severe infection. The splints and traction which replaced the cast

distal fragments of the femur were fixated for a

in the quality of the exposed bone plates exhibited were taken in May 1927. They show extensive formation of new bone and there is present in the shaft of the bone what appears to be a sequestrum of cartilage.

Of recent cases of beef-bone pegs reported the following present more than ordinary interest as they illustrate the value of this method in bridging large defects.

beef-bone cells. The idea seems a good one and we intend adopting it in future. In this case the peg was driven distally into the medullary cavity and embedded proximally in the spongy tissue of the head of the humerus.

CASE. P. Maynard Heath, *Proceedings Royal Society of Medicine Section of Surgery*, January

equal to that of the gap. The two projecting pegs are fitted and screwed together.



FIG. 1. Roentgenogram taken in May 9, 7 years after trans-planting beef bone splint.

CONCLUSIONS

The clinical behavior of a beef bone graft depends entirely on the relative activities of the osteoblasts and osteoclasts.

1. With proliferation of new cells from the living proximal and distal ends of the

2. With hyperactive new cell formation and sluggish absorption, the graft constitutes a sequestrum which either eburnates and remains in a state of quiescence or acts as an irritant foreign body with sinus forma-

tion and periodic extrusion of dead bone spicules.

3 With hyperactive bone absorption and sluggish new-bone formation the graft disappears by combined extrusion and absorption before union or filling in of the defect has taken place.

The factors which enable us to attain the ideal, i.e. an even balance of absorption and proliferation are first the thorough trim

third absolute asepsis.

Finally it has seemed to us that the term infection as applied to bone surgery is too loosely used and that in many cases of so-called septic results we are merely dealing with type three i.e. rapid necrosis of the

graft without infection—using the latter term in its proper sense. In other words, subacute osteomyelitis, with no anti-body reaction on the part of the individual should not be classed as an infection but as ordinary tissue necrosis.

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DEPARTMENT OF TECHNIQUE

KINEPLASTIC AMPUTATION OF FOREARM—TRIMOTOR¹

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KINEPLASTIC amputations are of indisputable value. Because of scientific principles based on the neuromuscular physiology of the kinetic motor because of improved and perfected operative technique because of the results obtained in the function of the motor and because of the improvements which have been made in kinematic prostheses—for all these reasons, I say, it is hardly believable that surgeons should regard with a doubtful disdain a problem of such grave importance.

Indeed, the benefits to be derived from the regular practice of such amputations are incalculable and these benefits apply as well to humanity to the state, and to the individual as

article, a stump with three motors (trimotor) by means of which an artificial hand may be worked. With three distinct, voluntary forces, independent of each other the hand is capable of performing varied and even complementary movements resembling those of a normal hand.

The technique which I have followed in the construction of motors is that described by Pellegrini (2). The patient I treated was a poor man who had lost both of his upper limbs. On the stump of the lower third of the right forearm I succeeded in getting three motors which would reproduce the natural movements necessary to move the hand prosthesis.

The first motor was constructed by suturing

that is to restore normal function to the amputated limb, giving to the prosthesis such movements as will enable the patient to perform at will the natural physiological functions of the mutilated member constitutes, in fine, the trend of modern surgery. Kinematization, or kineplasty as it has also been termed, is a procedure which no operative method hitherto known can put into practice. By means of kineplasty there is constructed on the segment of the amputated limb a kinetic element termed motor which has the property of transmitting a living voluntary natural force to the respective prosthesis and by means of this force the prosthesis is endowed with active motion governed by the patient's will.

When I began my studies, 4 years ago I performed only simple operations, furnishing stumps with one motor (unimotor) as shown in Figure 1. Later when I had acquired greater practical and theoretical knowledge, I ventured to perform operations which would produce two motors (bimotor) and obtained very encouraging results (Fig. 2). Finally I have succeeded in giving to the patient whose case is presented in this present

therefore, be made easy because of its similar function.

It is worthy of note that the re-education of the disabled is facilitated by using in the construction of the human motor

followed, the extensors being sutured with the rear cubital in handle form. With this second motor the fingers of the prosthetic hand could be extended. In this instance I made the epidermic tunnel of the motor "eye" larger as it is good and sound technique to build "eyes" of large diameter. With such an ample organic coupling there is a larger area of adaptation for the appliance of prosthetic or inorganic insertion; hence, the motor power is transmitted to the prosthesis without any of the drawbacks of ulceration of the skin of the tunnels, as occurred with my first patients (3).

From the service of Dr. Emilio Del Valle, Pizarro Hospital, Buenos Aires

tion and periodic extrusion of dead bone spicules

3 With hyperactive bone absorption and sluggish new-bone formation the graft disappears by combined extrusion and absorption before union or filling in of the defect has taken place

The factors which enable us to attain the ideal, i.e., an even balance of absorption and proliferation are first the thorough trimming off of dead bone proximally and distally with curette and chisel second firm apposition of the bone graft to living bone and third absolute asepsis

Finally it has seemed to us that the term infection as applied to bone surgery is too loosely used and that in many cases of so-called septic results we are merely dealing with type three, i.e. rapid necrosis of the

graft without infection—using the latter term in its proper sense. In other words, subacute osteomyelitis, with no anti-body reaction on the part of the individual should not be classed as an infection but as ordinary tissue necrosis.

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DEPARTMENT OF TECHNIQUE

KINEPLASTIC AMPUTATION OF FOREARM—TRIMOTOR¹

BY PROFESSOR G. BOSCH ARANA, BUENOS AIRES, ARGENTINA
Faculty of Medicine of Buenos Aires

KINEPLASTIC amputations are of indisputable value. Because of scientific principles based on the neuromuscular physiology of the kinetic motor, because of improved and perfected operative technique, because of the results obtained in the function of the motor and because of the improvements which have been made in kinematic prostheses—for all these reasons, I say it is hardly believable that surgeons should regard with wilful disdain a problem of such grave importance.

Indeed, the benefits to be derived from the regular practice of such amputations are incalculable, and these benefits apply as well to humanity, to the state and to the individual as to perfecting the technique of mutilative surgery, which, since the last terrible European war, has become a subject of intense interest.

To realize the desideratum of the surgeon that is to restore normal function to the amputated limb, giving to the prosthesis such movements as will enable the patient to perform at will the natural physiological functions of the mutilated member constitutes, in fine, the trend of

article a stump with three motors (trimotor) by means of which an artificial hand may be worked. With three distinct, voluntary forces, independent of each other, the hand is capable of performing varied and even complementary movements resembling those of a normal hand.

The technique which I have followed in the construction of motors is that described by

reproduce the natural movements necessary to move the hand prosthesis.

The first motor was constructed by suturing in handle form, the superficial flexor muscles with the deep-lying flexors (Fig. 3, 1). In order to

therefore, be made easy because of its similar function.

It is worthy of note that the re-education of

constructed on the segment of the amputated limb a kinetic element termed motor which has the property of transmitting a living, voluntary natural force to the respective prosthesis and by means of this force the prosthesis is endowed with active motion, governed by the patient's will.

When I began my studies, 4 years ago, I performed only simple operations, furnishing stumps with one motor (unimotor) as shown in Figure 1.

Later when I had acquired greater practical and theoretical knowledge, I ventured to per-

The second motor was constructed on the under surface of the forearm with the common extensor muscles of the fingers. The same technique was followed, the extensors being sutured with the rear cubital in handle form. With this second motor the fingers of the prosthetic hand could be extended. In this instance I made the epidermic tunnel of the motor eye larger as it is good and sound technique to build "eyes" of large diameter. With such an ample organic coupling there is a larger area of adaptation for the appliance of prosthetic or inorganic insertion; hence, the motor power is transmitted to the prosthesis without any of the drawbacks of ulceration of the skin of the tunnels, as occurred with my first patients (3).

¹FIGURE 1. ONE CASE IS PRESENTED IN THIS PRESENT

From the service of Dr. DeBor, Del Valle, Puerto Hospital, Buenos Aires

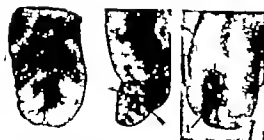


Fig. 1 Motor with a single handle "eye" Operative results after 10 d. 5. 1. 13a. 11th epidermis healed. The arrow indicates the direction of the "eye."



Fig. 2 Double motor for leg (bismotor)

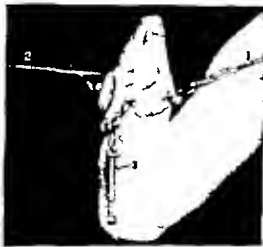


Fig. 3 Trismotor of forearm. Flexor motor 1, extensor motor 2, motor for thumb 3.



Fig. 4 Stump of forearm. 1b three motors were from front in order to give distribution of periphery. 1 flexor motor with tractor apparatus; 2 extensor motor; 3 motor proper to thumb.

The larger the motor "eye" the surer will be its practical results. This has been proven not only

patient greater wear and tear for it causes greater friction and the skin suffers, becoming abraded, eczematized, and ulcerated. On the other hand, a large "eye" of ample diameter 2 centimeter furnishes a greater area of adaptation with less attrition and less friction to the skin, and ulceration of the epidermis is less likely to take place.

The third motor I made on the outer surface of the forearm (Fig. 3-3). A similar technique was used and the extensor muscles of the thumb were sutured. Cicatrization was excellent and there were no complications worth mentioning.

Voluntary exercise of the three motors was begun. At first the function, as well as the motor power was at a minimum, but with time and the perseverance of the patient, greater motility and potency were attained. For exercising, the patient used an appliance with an ordinary hook from which hung a small bag of



Fig. 5. Kinesthetic hand for humerus of forearm constructed by Fusaroli, Rizzoli Institute Biologist



patient himself devoted more attention to it.

Nevertheless, we felt satisfied with the result and believe that, when the patient is provided with a complete prosthesis and finds it necessary to use the corresponding motors there will be improvement in both scope and power.

A year after operation the patient's forearm was found in highly satisfactory condition. The stump with its three kinesthetic "eyes" is shown in Figure 3. The three motors are side motors of the type invented by Pellegrini, and their perfect condition may be observed in the figure. Motor 1 is the flexor, 2 is the extensor and 3 is that of the thumb. Viewed from the front (Fig. 4) the stump is gauged in its peripheral distribution. As the operative technique plan had now been completed it remained for me to complete the result by means of a prosthesis.

Under Professor Putti's direction, the mechanical problem has been studied with singular success, and the orthopedist Fusaroli has constructed a hand for a humerus of forearm. This is the one I placed on my patient (Fig. 5).

The hand is made so that it will produce movements of the most natural kind.

Then the four phalanges are made of the fingers in repose. The movement of the fingers is effected by means of this appliance and they flex or extend by means of the two tractors corresponding to the flexor or extensor

muscles of the thumb. In my patient, the third motor constructed precisely from the extensor muscles of the thumb, is used to work the thumb, passive extension being accomplished by means of a spring.

To sum up, Fusaroli's hand is fitted for adjustment to a humerus of the forearm using one tractor for flexion and the other for extension. The thumb is immovable. As my patient has three motors and one of these is worked by the extensor muscles of the thumb it is logical that I should wish to make use of this unique and important finger. I am working along these lines and hope to re-educate the mutilated limb. This is of primary importance inasmuch as the

courage hopes of greater result.

My patient, who had lost both upper arms, was in a desperate condition. It was painful to hear him tell of the trials and misfortunes of his private life for he was the father of a family for whom he must provide through his own efforts and his task became an almost insurmountable problem. More than once I thought that my



Fig. 7. Film showing finger prosthesis.

have taken films, showing the patient doing ordinary things (Figs. 7 and 8).

The fact is worth stressing that the poor cripple is like another person, as is often said, for he enjoys living to a degree as encouraging as his previous depression was alarming. The joy he has in feeding himself, drinking water freely, smoking, etc., is spontaneous and effusive, for he feels that he is now a useful member of society and can enjoy his home with his dear ones. He wants to secure employment in the factory

will give use the flexor motor

The prosthesis was modified and mounted by the orthopedist Scheurer who has always

none the less interesting. Above all it is gratifying that we have succeeded in dispelling his intense depression.

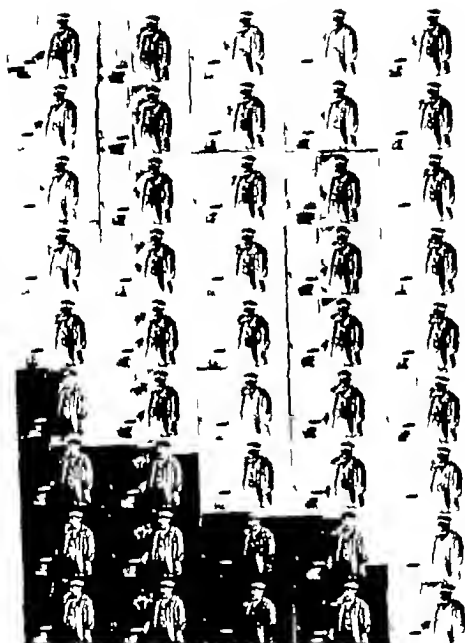


Fig. 8. Film showing lighting cigar and smoking

Naturally in order not to become too enthusiastic in judging the results secured in this case I must consider that besides the psychological effect upon the patient we have at the same time succeeded in interesting him in perfecting

the apparatus, and he is convinced that his future is dependent on his own will. All his cheerful enthusiasm converges toward a definite end which he glimpses inwardly and clearly *to utilize his art fiscal hand as he did his own*.



FIG. 7. Film showing finger movement.

have taken films, showing the patient doing ordinary things (Figs. 7 and 8).

The fact is worth stressing that the poor cripple is like another person, as is often said, for he enjoys living to a degree as encouraging as his previous depression was alarming. The joy he has in feeling himself drinking water freely, smoking, etc., is spontaneous and effusive for he feels that he is now a useful member of society and can enjoy his home with his dear ones. He wants to secure employment in the factory.

will give us excellent results as I obtained with the flexor motor.

The prosthesis was modified and mounted by the orthopedist Scheurer who has always seconded me in this humanitarian and scientific work, and to whom I owe in part the admirable success obtained. I acknowledge most gratefully his labors.

After 3 months' practice the patient is able to

(Fig. 6) to present a living document—of the result in my case I

am trying that we have succeeded in dispelling his intense depression.



Fig. 8. Film showing lighting cage and working.

Naturally, in order not to become too enthusiastic in judging the results secured in this case I must consider that besides the psychological effect upon the patient, we have at the same time succeeded in interesting him in perfecting

the apparatus, and he is convinced that his future is dependent on his own will. All his cheerful enthusiasm converges toward a definite end which he glimpses inwardly and clearly *to utilize his artificial hand as he did his own.*

a certain extent to believe this that does not mean that I hold the same enthusiasm for it must be said in justice to the subject that in reality one is confronted with insoluble biological problems.

The grafting or transplanting of entire limbs, therefore, suggest itself to us as the desideratum of plastic surgery but here again,

we must not let our enthusiasm unduly influence our better judgment. Let us then pass over the theoretical considerations, and say in conclusion, that our real object in doing kneeplastic amputations is to help solve the problem of the welfare of these unfortunate cripples.

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PRESERVATION OF THE MOTOR ROOT OF THE GASSERIAN GANGLION DURING THE DIVISION OF THE SENSORY ROOT FOR TRIFACIAL NEURALGIA

By MERED W. ADSON, M.D., F.A.C.S. Room 1024, May 1925

Section on Neurologic Surgery, Mayo Clinic

IT is possible to preserve the motor root of the gasserian ganglion by anatomical dissection without the aid of faradization during the division of the sensory root for trifacial neuralgia and I wish to present the technique employed since March, 1922 in nine consecutive cases, in which satisfactory results were obtained.

ADVANTAGES AND DISADVANTAGES OF THE RADICAL OPERATION

It is quite generally accepted that the radical treatment of trifacial neuralgia is the division of the sensory root of the gasserian ganglion except in cases in which the diagnosis is doubtful or the duration of symptoms short and then deep alcohol injection should be employed once, twice or possibly three times, or in cases in which the division is too great a surgical risk. Inasmuch as the radical operation is attended with fewer and fewer complications, the patient should be advised to undergo operation rather than be carried along indefinitely on alcohol injections. There are special indications for the

to control hemorrhage by ligation of the middle meningeal artery and picking with cotton pledgets, and to the use of special instruments, such as the illuminating retractor the dissecting hook, and so forth.

2. Ocular palsy due to hemorrhage and trauma to the third, fourth and sixth cranial nerves. This has been avoided by traction on the dura in the exposure rather than application of pressure against the tissues in the vicinity of these nerves.

3. The high mortality rate. This was due to hemorrhage and trauma to the brain, and has been lowered by the reduction of the time for the operation. At one time from 2 to 3 hours were necessary to complete the operation, now it can be performed in 1 hour or less, including time from the giving of the anesthetic until the wound is closed and the patient is ready to be sent to his room.

4. Traumatic keratitis or trophic keratitis. This has been diminished by the avoidance of

division particularly the supra-orbital and supra-trochlear nerves, which are difficult to inject moreover the procedure is sometimes attended

tion develops. The technique employed or the care exercised by the surgeon. We have all had the experience of performing a long series of operations without facial

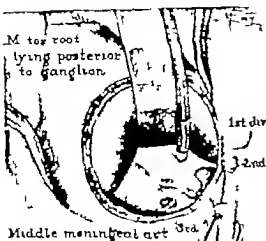


Fig. 1 Exposure of the gasserian ganglion with its arachnoid covering previous 1 division of the posterior sensory root.

paralysis, and then the condition develops without any known reason. Many theories have been presented with regard to its probable cause. It is comforting to know that the facial paralysis is usually only temporary and recovery is spontaneous, but the cornea must be protected during recovery.

6. Number of the facial nerve anastomoses of

than that which follows successful alcoholic injection or peripheral nerve avulsion. However the patient who has had one or two recurrences of

jaw on opening prevent good coaptation of the

motor root and thereby prevent motor paralysis, there is no particular object in saving the motor root in a very old patient who has had all of his teeth removed on the affected side and who does not intend to use a plate. Nor is it wise to save the motor root if the question of time is an urgent factor in the operation on an elderly patient. However the preservation of the motor branch is an added refinement in the technique and avoids paralysis of the two pterygoid masseter and

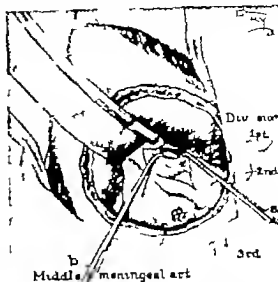


Fig. 2 Exposure of the motor root on the mesial side of the sensory root fiber of the gasserian ganglion by elevating and retracting the sensory root fibers forward, downward, and outward just as they emerge from the gasserian ganglion.

temporal muscles. It should also be preserved since there are a few double neuralgias and be-

neuralgia.

While it was necessary to rely on faradization of the motor root in order to determine absolutely whether or not it was preserved, the technique was very tedious, prolonged, and uncertain on account of the electric current jumping from sensory fibers to motor fibers, and giving rise to false interpretations. With the development of this technique I find it possible to dissect the sensory root from the motor root and divide it without injury to the motor root in approximately the same time that is required to expose and divide the entire posterior root of the gasserian ganglion.

The motor root as it enters the middle fossa over the petrous portion of the temporal bone through the hiatus in the dura is found underneath the sensory root on the mesial side; it continues in that relation under the root fibers until it enters the middle fossa.

muscle into which it diffuses.

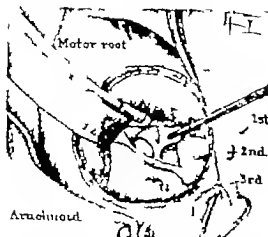


Fig. 3. Dissection of the first and second posterior sensory root fibers exposing the motor root as independent fasciculus and may a separate sheath beneath the ganglion body before reuniting into the third branch of the posterior ganglion.

TECHNIQUE OF OPERATION

The ganglion is exposed through an oblique

the arachnoid which is attached to the ganglion, until pulsation can be seen above the ganglion. These pulsations occur over the posterior root



After dissecting is completed, a small white hold the illuminated retractor which gently elevates



Fig. 4. C. C. 13679. Normal symmetry of the face due to preservation of the motor root in the division of the sensory root of the posterior ganglion.

side of the sensory root but not underneath and elevates by traction downward and outward sufficiently to expose the motor root lying as a separate fasciculus underneath and independent of the sensory root presenting a downward course toward the third branch rather than following the sensory root fibers upward and inward to the mesial side of the posterior ganglion.

After the motor root is brought into view the sensory root is held away from the motor root by hook *a* and dissecting hook *b* is replaced by a small sharp right-angled knife

they enter the ganglion these are retracted gently

beneath the posterior ganglion body with diffusing in the third branch of the posterior ganglion. Precautionary care should be exercised carefully to examine the hiatus in the dura over the petrous bone, and to avoid leaving sensory

fibers either on the medial side or on the lateral side of the posterior root

I have used this technique in nine consecutive cases since March 16 1922 and have had no difficulty in preserving the motor root being able to divide the sensory root just as quickly and as accurately as when dividing the entire posterior root sensory and motor After division of the posterior sensory root, one must be cautious to avoid unnecessary sparring of the motor root as the slightest trauma will impair the function of the pterygoid masseter and temporal muscles the impairment is of course only temporary but

if a perfect result is expected trauma to or traction on the motor root must be avoided (Fig. 4)

CONCLUSION

I do not claim to be propounding a new theory concerning the advantages of the preservation of the motor root, nor do I wish to detract from the value of any technique employed for the preservation of the motor root during the division of the sensory root for trifacial neuralgia. The technique is submitted because it can be quickly and easily carried out without the uncertainty that comes with faradization

A CASE OF PRIMARY CARCINOMA OF THE FEMALE URETHRA TREATED WITH RADIUM

By LAWRENCE A. POMEROY, M.D., JACS. and FRANK W. MILWARD, M.D., CLEVELAND, OHIO
(Attending Surgeon and Resident Surgeon, respectively Huron Road Hospital)

THAT primary carcinoma of the female urethra is a rare disease is shown by the fact that the subject has received but scant attention in standard textbooks on gynecology. Likewise but few authenticated cases can be found in the literature.

Kelly and Burnam (1) describe primary urethral carcinoma as a rare disease in which the cancer begins in the mucous membrane at the

in our case) and (2) that surprisingly it may occur, these patients usually retain urethral control. In our apparently well advanced case the patient retained control of the urethra.

O'Neil (2) brings the subject up to date and

reported by various authors, including the very complete and critical summary by Percy (3). O'Neil's report includes 68 cases of primary carcinoma of the female urethra which have been reported to date. We wish to report an additional case which we feel to be worthy of note in that it calls attention to the fact that carcinoma, uncommon as it may be in the female urethra, seemed in our case to have followed a course, which we all know to be characterized by its frequency.

December 2, 1919. Mrs. L. M. entered Huron Road Hospital, referred from another institution. She complained of bleeding from the vagina accompanied by sharp pain which became worse when she walked. The

ular form) The first form they say "spreads throughout the length of

up the inside of the pubic ramus and into the inguinal glands. The superficial external form develops a hard infiltrated flattened area of ulceration spreading out over the surrounding mucosa involving the vestibule and clitoris as well as up under the mucosa of the urethra. This is as good a description of the subject as we have been able to find. Kelly and Burnam suggest two points which seem to be borne out in our case: (1) a urethral grade women



Fig. 1. Low power photomicrograph of tumor.

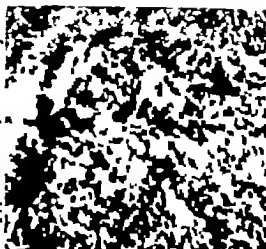
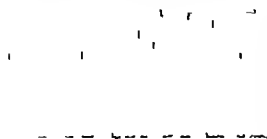


Fig. 2. High power photomicrograph of tumor.



examination showed numerous leucocytes and red blood cells.

The blood examination showed:

| | |
|--------------------|-------------|
| Red cells | 4,000,000 |
| Leucocytes | 14,400 |
| Hemoglobin | 95 per cent |
| Differential count | per cent |
| Polymorphonuclears | 64 |
| Lymphocytes, large | 6 |
| Lymphocytes, small | 29 |
| Leucocytes | |

Wasserman reaction: as negative.

A tentative diagnosis of primary carcinoma of the

parent in the inguinal region or elsewhere in the body.

— M. —

The hole is accompanied by considerable round cell

The treatment of this important condition varies considerably but in general thorough extirpation of the anterior portion of the urethra

unless the operation is done for a wide-spread case. Crossen has devised an ingenu-ous plastic resection of the urethra after primary drainage of the bladder through the vaginal wall.

X-ray has been reported as of value in the palliative and postoperative treatment of the disease.

It seems to us that radium, because of its accurate and easy application, offers a better chance for the well advanced case than operative interference.

Kelly and Burnam advise the use of radium following the operation as a guard against recurrence.

Our case being in a very elderly person and appearing to be extensive, although no definite evidence of lymphatic involvement could be made out we thought to be best treated by radium, as this could be done without submitting the patient to the shock of a more or less extensive operation.

SUMMARY

1. Primary carcinoma of the female urethra is a rare disease, our case bringing the total reported in the literature to 69.

2. Urethral caruncle although a relatively common affection of women, may be followed by malignant degeneration, hence the importance of its early recognition and treatment.

3. Cancer in this location, although rare should be recognized early and rigorous treatment instituted.

4. Treatment in the early cases consists of radical extirpation even to the extent of resection



Fig. 3. Gross appearance of tumor protruding from urethra.

of the bladder but this should be rarely necessary. In most cases the vesical sphincter can be saved in the operative procedure.

5. Radium should follow all operations and may be used alone in the well advanced cases.

NOTE.—Since this article, as submitted for publication the following article has come to the notice of the authors, *Le cancer de l'urètre chez la femme*, Verriot and Parrot, *Bull. Chir.*

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Fig. 1 Low power photomicrograph of tissue

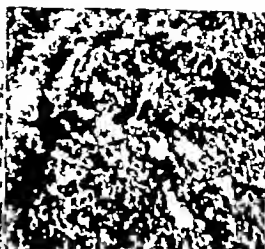


Fig. 2 High power photomicrograph of tissue

examination showed moderate leukocytosis and red blood cells.

The blood examination showed

| | |
|------------|-------------|
| Red cells | 4,000,000 |
| Leucocytes | 5,400 |
| Hematocrit | 93 per cent |

Differential count

| | |
|--------------------|----------|
| | per cent |
| Polymorphonuclear | 64 |
| Mononuclear, large | 6 |
| Mononuclear, small | 29 |
| Leucophiles | |

Plasma reaction as normal

A tentative diagnosis of primary carcinoma of the

1

parent in the inguinal region or elsewhere in the body.
There is moderate tenderness elicited just over the

solution, until required to use in the area to be grafted. Four large pieces are taken to insure against a disaster. The sinus cavity is thoroughly freed of its diseased membrane, rendered dry by pressure sponging and the use of adrenalin chloride. The graft is inserted in the sinus cavity and placed over the intact anterior sinus wall. It is made adherent to the bone by the use of the Ballance catheter and then further spread over the vault of the sinus, brain plate, and exposed bone area of the newly made common nasofrontal duct. It is held in position by pledgets of cotton, by following the method used by Dench in skin grafting radical mastoid cavities. The method consists in using one or more small pledgets of cotton tied to long pieces of

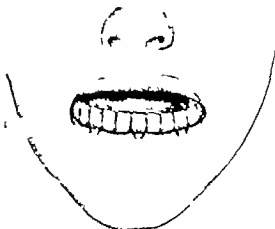


Fig 3. Mattress sutures through tissues and tied to teeth, covering skin covered mold.

desquamation of the grafted surface and (sometimes there may be) especially at the junction of the overlapping grafts, due to epithelial overproduction, this scaling can be controlled by the application of sterile liquid alkaline.

In the case of the antrum the same procedure is followed except in using pledgets of cotton, one can use a small soft balloon with catheter attachment. This is inserted through the nose

in the deflated state and after it is placed in position in the antrum it is inflated to such a degree of tension as to assure even and firm pressure. After the sixth day it is deflated and removed. When using cotton pledgets with attached strands of silk I prefer to exit them through the gingival incision.

By allowing the external wound to remain open, one is able to determine after removing the pledgets of cotton, how well the graft has

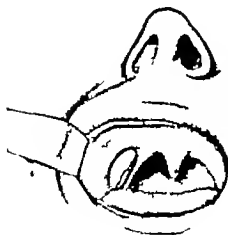


Fig 4. Graft covered with a Thiersch graft in towel mold.

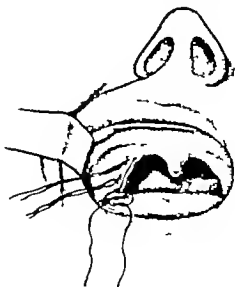


Fig 5. Pillars of flukes sewn on skin covered mold with mattress sutures.

THE THIFRSCH GRAFT IN THE RADICAL CURE OF FRONTAL SINUS AND MAXILLARY ANTRUM DISEASES

ITS FURTHER APPLICATION TO THE TONSIL AND GINGIVAL SULCI¹

By J. FASTMAN SHEELAN, M.D., F.A.C.S., New York.

Attending Plastic Surgeon, U. S. Public Health Service No. 33, Associate in Laryngology, New York Post Graduate Medical School and Hospital, Surgeon, Washington Square Hospital, Surgeon, Episcopal All Saints' Hospital, Marlborough, New Jersey, St. Mary's Hospital, Orange, New Jersey and the Port Jervis Hospital, Port Jervis, New York.

I AM pleased to present to you tonight three cases out of four of the same condition.

Fig. 1. Lip sulcus rendered free from offending scar tissue by excision, with exposed bones of mandible.

In the radical cure of frontal sinus or antral diseases it seems only reasonable to me, that the sinus surfaces which have been rendered bare should be covered, preferably with a skin graft of the Thiersch variety thereby insuring one of eradicating the disease and leave a cavity which

shall be free from future trouble. Draining, weeks of irrigation, and the formation of scar tissue is avoided. I applied this principle to a

Some time the procedure we have seen entirely free from this distressing condition and the antrum is free. Skin grafting of the frontal sinus and maxillary antrum has passed beyond the experimental stage as shown by the reports of Smith, Gillies, and myself. Its application to the tonsillar sulcus is still experimental. Probably before long better methods will be evolved which will simplify the transplanting of skin to this cavity.

TECHNIQUE

The graft is cut, preferably from the right inner aspect of the thigh, to include the papular layer of the corium and, if properly cut, only a slight amount of punctate bleeding ensues. It is placed upon a metal plate with its raw surface uppermost and evenly spread out. It is then covered with gauze wet in physiologic salt



Fig. 1. Lip sulcus rendered free from offending scar tissue by excision, with exposed bones of mandible.

Fig. 2. Skin covered mold placed in lip sulcus.

EDITORIALS

SURGERY, GYNECOLOGY AND OBSTETRICS

FRANKLIN H. MARTIN, M.D.
ALLEN B. KARAVEL, M.D.

Managing Editor
Associate Editor

SEPTEMBER, 1922

"THE PARTY OF THE THIRD PART

TRANSITION from the old to the modern scheme of medical education is a conspicuous achievement of two decades. During this brief period scientific medicine and medical schools have become a new thing in the world's pedagogic endeavor.

It is of interest to note that during these twenty years one half of existing medical schools have been eliminated with a corresponding decrease of the student body. Expansion of plant equipment, general and departmental, has called for tremendous outlay on the part of institutions. Elaboration of curricula with its exaction for higher standards has created a demand for larger and better equipped teaching forces. Finally there must be noted the added years for undergraduate study and the increased per capita cost which is conservatively estimated at from fifteen hundred to two thousand dollars a year per student. These facts are basic in our present regime and it is not strange that much concern is aroused on the part of administrators whose task it is to "carry on" and to make provision for future expansion.

Very recently in a spirit of perfect frankness there has come from sources high in authority a word of caution to the effect that in this modern scheme teachers seem to be losing their sense of proportion in an effort to do the impossible the inference being that in the expansion of courses time is wasted upon what Hamerton calls "unsound accomplishments" at the expense of the real essentials.

Dr. Frank Billings assures us that modern clinical medicine embraces such a vast field of knowledge that it is beyond the power of any individual to acquire the necessary learning experience and technical skill to practise efficiently in the entire field. This significant declaration is manifestly a confession as regards the apparent tendency toward specialization, against which there are numerous and earnest protests—added years of undergraduate work has encouraged heads of special departments taking themselves rather too seriously to magnify the importance of their subjects as a part of the general curriculum and with it there comes the demand that a proportionate number of hours be accorded to such instruction without regard for the aims or ideals of the individual student. These protestants insist that in many schools the tendency toward the pyramiding of specialties is inevitably productive of superficiality. As a result students too often are found to have acquired a smattering of disjointed knowledge with minimum facility in its application to their later and more serious tasks. Furthermore the protestants against specialization proclaim loudly in behalf of the general public the party of



Fig. 6. Incision of duct of frontal sinus after the method of Lambrop. Thiersch graft in position held in place by pledget of cotton.

taken. In no case should the cavity be irrigated until after the tenth day.

In the third case the inside of the lip was grafted after the free excision of offending tissue. Epithelization of this new sulcus was obtained and a suit-

the tonsil
as it pre-

vents cicatricial contraction and diminishes post-operative hemorrhage. After the tonsil is removed bleeding is controlled by one of several methods. Skin grafting of this new sulcus is obtained by making a mold of the cavity, the graft being applied to its surfaces, raw area outermost. The pillars of the fauces are sewn together by two or three mattress sutures over the skin-covered mold. The mold and sutures are removed after the fifth day. The throat is kept clean with gargles of saline.



Fig. 7. Reduction of size of antrum after the method of Denker. Thiersch graft covering bony surfaces, all pledgets of cotton in place the graft in place.

On September 5, under local an. above, secondary septum operation, as done and both middle turbinates removed. The ethmoidal labyrinth and sphenoidal cells

LOBULATED EPITHELIUM (Fig. 2) (Fig. 3) (Fig. 4)
nasal discharge. Mucous membrane lining antrum and
face replaced by skin, as demonstrated by the use of the
rhinoscopy.

Case 5. Mary D. age 1, referred by Dr. J. J. H.

CASE 1. Frontal sinus disease, after operation. Apph-

In the fundi of persons who have nephritis are induced by high blood pressure arteriosclerosis, and serious impairment of renal function and are varied in degree and kind according to the seriousness of these conditions, leads to the assumption that all three are intimately concerned that is, any one may in itself be responsible for the appearance of changes in the retina. Such an assumption seems possible since observations of selected cases of advanced retinitis show any one of these conditions prominent and the others absent or present to a negligible degree.

Impairment of renal function, or decompensation of the kidney usually precedes the appearance of changes in the fundus by a few days or a few weeks. Periods of kidney decompensation are often transitory so far as chemical tests on the blood and urine indicate and may come and go without any visible changes in the retina at the time or shortly afterward. During a period of renal decompensation there is accumulation of toxic substances in the blood these have been assumed to be primary elements in retinal damage and although the exact nature of this damage was not explained there seemed to be ample clinical evidence to support the assumption. Since it was known that the urea content of the blood increased, the retinal changes were said to be due to azotemia. Mere absence of a kidney or the presence of small, contracted kidneys, does not give rise to the grave toxemia of even a short period of anuria or impaired function. Hence on the basis of azotemia the retinal changes should be definitely related to the severity and duration of renal decompensation, whatever the pathological condition of the kidney may be but we lack information on this point.

Indeed it is even denied by Schreck and Volhard that renal insufficiency that is

toxic constituents of the blood the result of low activity of the kidney is a factor in the production of retinal changes. Basing conclusions on their observations they assert unequivocally that rise in blood pressure alone is the factor that produces these changes. Granting that both azotemia and rise of blood pressure are definitely concerned in the production of the retinal changes and the two theories are equally well supported the combined effect of these two factors should bear a certain relationship modified by a third factor namely arteriosclerosis. Retinal hemorrhages, edemas, and exudates are intimately concerned with the blood vessels of the fundus and observation of the walls of these vessels is fundamental in the study of retinitis of nephritis. Primary sclerosis of the retinal arteries without renal disease gives a picture closely resembling that found in nephritis combined with arteriosclerosis or hypertension, but on close observation it is seen to lack the elements that make the characteristic picture of renal disease. Sclerosis of the retinal arteries is found by all observers in a high percentage of cases of retinitis of nephritis and its importance in the production of the characteristic features of the disease is quite generally accepted. The manner in which sclerosis modifies the edema and hemorrhages seen in the retina has not as yet been demonstrated particularly in cases of hypertension. Primary sclerosis of the arteries may be followed by hypertension, as a result of sclerosis or a totally different condition and secondary sclerosis from toxemia or hypertension may be followed by atheroma or senile degeneration then if renal decompensation with azotemia arises a triple combination in production of the retinal picture is presented. Azotemia occurs without sclerosis and without retinitis, as does high blood pressure arteriosclerosis may

the third part" in whose interest, it must be borne in mind all effort finally centers.

Beyond doubt there has been and always will be an imperative need for men of broad professional training, men well equipped as general practitioners, capable of filling the rôle of the family doctor who though short on metabolism are long on the human titles in a word that type of men who in addition to laboratory and technical training are capable of acquiring what Dr William Pepper has defined as "the uncanny sense of diagnosis." This applies not only to the isolated remote communities but to the more densely populated districts as represented by towns and cities of the fourth and fifth magnitude. There is a widespread belief that many capable young men, whose traditions are of the farm, the forest, the mountains and the mines after long years devoted to laboratory work, to refinements of diagnosis and to the superficialities of specialism become hesitant at the end to return to the environment whence they sprung where they are badly needed and where they will find an open door to a successful career.

The result of all this, it is alleged has been that many country districts have been left open to the inroads of the irregular and the charlatan. Doubtless this need is felt throughout our entire country from New England to California.

The abandonment of medical teaching by many reputable schools and several universities notably Dartmouth and Bowdoin because of inability to meet established requirements as Class A schools may in the long run become a matter of profound regret. Accepting this view of the present tendency overcrowding of large cities and neglect of remote districts, one is led to inquire if we are not drifting unwittingly toward socialized medicine for it is inevitable that medical

needs uncared for by the general profession will be assumed as governmental function. This principle once established will surely become universal.

It seems quite within the range of possibilities that sooner or later governing bodies and faculties of medical schools will seriously consider a revision of curricula to the end that more time and better facilities be apportioned to the teaching of what are to be regarded as the fundamentals anatomy pathology general medicine obstetrics, pediatrics and surgery. Even the latter may be eliminated from this category as it is very definitely one of the most highly developed of all specialties. Beyond question this would result in finer co-ordination and greater thoroughness in these branches. Under such a policy clearly defined provision could be made for adequate training in special branches under a post-graduate or extension course, whereby more thorough and exhaustive knowledge could be acquired by those who may elect one or more of these studies. It may be added that under this scheme there would accrue a tremendous saving of time and energy for those who look forward to a career in any given specialty.

THOMAS W. HUNTER

RETINITIS OF NEPHRITIS ETIOLOGY

THE etiology of retinitis of nephritis has been a puzzling problem to internists and ophthalmologists for many years. Clinical studies supported by chemical and pathological data have been conducted but the conclusions have been so opposed that it cannot be said that the factors most prominent in the production of retinitis or the manner in which the fundus changes occur have been agreed on. The belief that changes

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THOMAS W. HUXTINGTON

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occur without either azotemia or hyper-tension retinitis is found with only one any two or all three of these factors.

The picture then must be composite in which three possible etiological factors are at work at once, each modified to some extent by each.

Chemical study of the ocular fluids during azotemia or high blood pressure may throw further light on the nature of the retinal changes. Determinations of intracranial pressure and intra-ocular tension should be made in different stages of the disease, because the retinitis that comes from choked disc is so nearly like the retinitis of nephritis that the difference is hard to explain.

The term "albuminuric retinitis" has served to indicate a large group of retinal pictures that are now known to have unrelated etiological backgrounds some have nothing at all to do with albuminuria. It is well agreed that in no instance is the picture dependent on albuminuria. The term then, should be avoided in the future and some other words as "fundus changes in nephritis" or "retinitis of nephritis," be used. The objection has been raised that the changes that occur in the retina are not those of a true retinitis, but in all probability they are as truly inflammatory as are the changes in the kidney in chronic nephritis.

WILLIAM L. BICKNELL

THE INFLUENCE OF ADIPOSITY ON SURGICAL RESULTS

SIR JAMES PAGET in writing on senility in 1847 said that senescence is marked either by loss of quantity as in the emaciation of old age, or by loss of

quality as in the obesity of advancing years. Obesity is closely associated with carbohydrate metabolism and a considerable percentage of obese persons die from diabetes. The deleterious influence of adiposity on surgical mortality is very considerable. It is not alone a factor of anesthesia, because there is an unexpected mortality following operations on obese persons when performed under local anesthetics. Operations, no matter how trivial should be considered seriously in the face of the obesity of the old which must be regarded as a process of senility or degeneration, and in the adiposity of the young and middle-aged operations of expediency should not be lightly undertaken. Necessary operations, however must be performed on the obese patient and so far as possible under local anesthesia.

The greater number of necessary operations on obese patients are not emergency and often a reduction in weight of 10 or 15 per cent will place the patient in excellent condition for operation, other things being equal. The reduction of weight before abdominal operation relieves the intra-abdominal tension in the absence of infection an obese patient thus prepared seldom dies from conditions that a person of ordinary weight would recover from. However the weight should not be too greatly or too rapidly reduced as debilitation may result. Methods for the reduction of weight are best carried out by an experienced internist who is interested in diabetes. It is sometimes advisable if rapid reduction has been necessary to give the patient a fairly full diet for several days immediately preceding operation.

WILLIAM J. MAYO

MASTER SURGEONS OF AMERICA

CHRISTIAN FENGER

CHRISTIAN FENGER was born at Breinnggaard Breinige Sogn, Denmark November 3 1840. He was one of twelve children born to Kammerand Hans Fritz Fenger and Frederikke Mathilde Fjelstrup both representatives of excellent families and well-to-do farmers. All of the sons secured excellent educational advantages, but with self-help. In 1851 the boy Christian Fenger entered the Herlufsholm school and graduated therefrom in 1859. He had a great love for the natural sciences and entered the Polyteknisk Lærestalt beginning the course in civil engineering. After one year his father induced him to take up the study of medicine. In 1860 he passed his first examination in anatomy zoology chemistry and botany and soon thereafter passed an examination in philosophy *cum laude*. He partly earned his way by teaching in the Melchior high school and by tutoring dental and medical students. During the war between Denmark and Prussia he became an assistant surgeon at the Augustenborg Lazareth. In 1865 he again took up the study of medicine and in this year passed an examination to practice medicine. During the next 3 years he acted as an assistant to Dr. Villem Meyer in clinical otology and collaborated in the investigation of adenoid vegetations in the nasopharynx. In 1869 he was appointed interne in the Royal Frederik's Hospital for a two-year period. During this period he wrote a prize essay entitled "Concerning Subperiosteal Operations and Evicement" and also made fundamental experiments concerning gunshot wounds of horses at the Royal Veterinary College and invented instruments for locating and extracting bullets from tissues. This experimental work was rewarded by a grant from the Royal Danish Ministry of War which enabled Fenger to take part in the Franco-German War. In January 1871 he was appointed by Professor Socin of Basel, to serve in the Red Cross International Ambulance and assigned to duty on the battlefield of Bourtaki Werden (Haute Saône). His experience in the war enabled him to write a report on the endoscopy of gunshot wounds. Immediately after the war he studied pathological anatomy and attended the surgical clinics at Vienna, and on his return to Denmark was appointed prosector to the Kommunehospital. In this position he continued until the end of 1874 during which time he took advantage of the splendid opportunities for investigation in pathology and morbid anatomy which was evidenced by the



Hospital immediately tendered his resignation for the purpose of making the position available to Fenger. From the spring of 1878 until 1893 Fenger was the chief pathologist at the County Hospital. For 14 or 15 years the autopsy room at the County Hospital was the Mecca of medical students, internes and members of the medical profession of Chicago who for the first time in the medical history of the Middle West had an opportunity to witness scientifically conducted autopsies and to learn the fundamentals of morbid anatomy and pathology.

In 1879 Fenger served in the surgical wards for the various members of the surgical staff of the hospital when they were absent from the city on vacations. This surgical service gave him the opportunity to introduce Listerism—anti-septic surgery—in the Middle West. In 1880 Fenger secured appointment with a regular surgical service in the County Hospital in which he continued for the next 13 years.

From 1880 to 1884 he was curator of Rush Medical College Museum. In 1884 he was appointed professor of surgery in the College of Physicians and Surgeons. In 1893 he became professor of surgery in the Northwestern University Medical School and in 1899 he became professor of surgery in Rush Medical College affiliated with the University of Chicago. He was surgeon in chief of the Passavant Memorial Hospital, the German Hospital of Chicago and the Lutheran Tabitha Hospital from the time they were organized until his death. From 1893 to 1899 he was attending surgeon at the Mercy Hospital. Chicago and from 1899 until his death, he was attending surgeon at the Presbyterian Hospital.

He was a member of the Chicago Medical Society, its president in 1901; the Chicago Surgical Society; the Illinois State Medical Association; the American Medical Association; and the American Surgical Association, its vice-president in 1895.

He was a prolific writer upon subjects relating to surgery, special pathology and diagnosis. These papers were published under the joint editorship of Drs. L. Hektoen and C. G. Buford.¹

Soon after he located in Chicago, Fenger married Caroline Sophie Abilgaard who was born in Denmark and came to the United States with her parents when 5 years of age. This happy union was characterized by mutual sympathetic understanding. Two children were born to them, a son, Frederick A. who graduated at Cornell University and qualified as a marine architect, and a daughter, Augusta Maria.

FENGER THE SCIENTIST AND MAN

In the foregoing the writer has given bare statements of the struggles for education, the professional positions held and other data of historical interest. The outstanding features presented are the evidences of the purposeful industry of the man. Undismayed by difficulties and obstructions to the attainment of

important papers he completed on "Cancer of the Stomach" "Acute Hydrocephrosis" "Gonorrhoeal Rheumatism" "Endoscopy of Urethra" "Stenosis of Ostium Pulmonale" and others. The article on cancer of the stomach was written after painstaking investigation which included the explanation of the pain in cancer of the stomach as due to the involvement of the end-filaments of the pneumogastric nerve in the cancer mass. This was his thesis for the degree of Doctor of Medicine which was granted in 1874 approximately 13 years after beginning the study of medicine.

In the winter of 1874-5 he was appointed docent in pathological anatomy and became a candidate for the professorship of pathology upon the death of Professor Rasmussen. He was prepared to take part in the competition for this position, but the place was finally given to Professor Carl Lange by appointment. Feuger looked forward to an academic career in pathology and was disappointed that he was not permitted to compete for the place. However he accepted the situation philosophically and finally determined to make surgery his life's work, for which his long and extensive experience and investigation of morbid anatomy and pathology especially prepared him. He therefore decided to seek outside of Denmark the opportunities which would enable him to dedicate himself to surgery. In 1875 he went to Alexandria, Egypt, to assume the practice of his brother Dr Sophus Feuger while the latter visited Denmark. On the return of his brother he located in Cairo where he resided with a friend Dr Bull. Here he secured a salaried position as *Médecin du Quartier de Kalifa* under the chief of medical affairs in Cairo, Dr Ahata Bey. In this position he investigated trachoma in the children of the public schools, and an epidemic disease of horses and mules which prevailed in Egypt following the war with Abyssinia in 1875. In 1876 he suffered from dysentery including an infection of the liver which interrupted the investigations he was making upon *hematobium bilharzi*. The winter of 1876-7 he spent in Mentone France and recovered his health. After his return to Cairo in the spring of 1877 the infection of the liver reappeared and he determined to seek a temperate climate. He had become acquainted with some American Army officers, among them Major Irgens, who persuaded Feuger to accompany him to Bloomington, Illinois. In June, 1877 he resigned his position with the Egyptian government and arrived in the United States in the fall of that year.

CAREER IN THE UNITED STATES

On a visit to Chicago soon after his arrival in the country he was persuaded by his countryman and friend Dr S J Jacobson, to locate in Chicago. Dr Jacobson introduced Feuger to the members of the staff of the Cook County Hospital and he was invited to conduct a few autopsies at that institution. His scientific demonstration of pathological anatomy created such an impression that Dr Isaac N. Danforth who held the appointment of pathologist to Cook County

Memorial Association, organized soon after his death perpetuates his memory through scientific research carried on through the income of an endowment fund.

His home life was ideal and happy. Both he and Mrs. Fenger loved art, music and literature and the society of cultured friends. Christian Fenger passed from this life on March 7, 1902, but though 20 years have passed, he lives today in the hearts and minds of hundreds of physicians and surgeons who were proud to call him master, and he will continue to live through other generations by the work of his students and his pupils' students.

FRANK BILLINGS

objectives he won success in practically every project undertaken. His knowledge of morbid anatomy and of pathology was phenomenal for that day and was attained by unremitting energy during his life in Denmark and Egypt and his earlier experience in the United States. This knowledge of pathology and of morbid anatomy made him one of the great surgeons of his time. He never became a brilliant operator but what he lacked in operating skill was more than compensated for by thoroughness and knowledge of pathology. In diagnosis he was unsurpassed by any of his living contemporaries. He spoke five or more modern languages but did not possess a ready command of any language. Nevertheless he was a great teacher and though his speech was usually marked by halting words, he was able to impart knowledge to others with greater clearness than most teachers with fluent speech. He was especially fond of young men who showed by their every day lives that they had a thirst for knowledge and expressed this by purposeful enduring work. He spent hours of his valuable time both of the day and night in the instruction of young medical men. In these interesting conferences he frequently forgot the passage of time in the apparent joy of teaching. It was through his influence that many of the young medical men of the period from 1880 to 1900 visited the clinics of Germany, Austria, France, and England and later became leaders in their chosen fields of work in the United States. While Fenger loved above every other thing in his professional life to help young men who were not afraid to work, he expressed an impatience with the frivolous and indolent men with whom he came in contact. Always he had the courage of his convictions and expressed them with blunt words which some times gave those unacquainted with him the idea of unfriendliness. But no man the writer has ever known was free of envy or jealousy of others. Always he availed himself of every opportunity to express appreciation of the work of other men, provided it was characterized by honesty and efficiency. He was honest intellectually and professionally. He was sincere and by nature simple in his deportment and daily life. He was free from cupidity and sympathetic with the poor to each patient he applied all of the knowledge he possessed and all of the time necessary disregardful of financial reward.

Fenger lived in Chicago 24 years. During that period of time he exerted an influence in scientific medicine unequalled by any other individual. It was due to his influence and particularly as a pathologist that there developed such men as Nicholas Senn, John B. Murphy, William J. Mayo, Lewis L. McArthur and many others celebrated as great surgeons, and Ludvig Hektoen, E. R. LeCount, H. G. Wells and others recognized as great pathologists, and many practitioners of internal medicine throughout the Middle West and in Chicago. This splendid influence of Fenger was generally recognized as evidenced by the testimonial banquet tendered him by several hundred members of the profession many of them from distant states on the sixtieth anniversary of his birth. The Fenger

vive if favorably placed for reception of nutrition, proliferate and participate in the establishment of union and transformation in the compact portion of the transplant which undergoes necrosis. If an entire bone, as a metatarsal or metacarpal, is excised and reinserted, it takes, and in 3 months you can scarcely tell that it has ever been excised. If, however, it is boiled before reinsertion, infection very

Dr DEAN W. CRILE. Dr Barney Brooks, of St. Louis, has shown that the live bone transplant lives, and that it lives to produce new bone. He discovered a vital stain which stains only growing bone and by means of its use has been able to demonstrate that autogenous grafts live. Based upon

ter and stands above the surface of the bone for a considerable distance. This gives fixation by a heavy graft which will not break and which has a good chance to take.

Dr KELLOGG SPEED. I have operated on three fractured femurs attempting to obtain a repair by means of beef bone implants or intramedullary transplants. Two were successes and one was a failure. None was infected. One patient was a young girl who had a fracture of both femora. One femur failed to unite and the other side succeeded, both were without infection. Why this was I do not know.

treatment of a group of selected cases in which the

had had arthritis of the knee for 9 years. He had

nent and found there live bone cells. In the cortex of that graft were live cells which replaced some of the dead bone. This graft was placed in the marrow

the propagation of the operation which may cause shock is undesirable. Beef bone is applicable to that type of case. It is good because

intramedullary transplant altogether. I never use

Dr GEORGE DE FARVONSKY (closing). I have heard repeatedly of Dr. Davidson's experiments on dogs. We all appreciate the fact that dogs become infected very readily, and that there will always be a large number of infections in bone surgery on dogs or cats.

TRANSACTIONS OF SOCIETIES

CHICAGO SURGICAL SOCIETY

REGULAR MEETING HELD APRIL 7 1922 DR. DAVID D. LEWIS, PRESIDENT

AUTOGENOUS VERSUS HETEROGENOUS BONE PLUGS

DR. GEORGE DE TARNOVSKY read a paper entitled "Autogenous Versus Heterogenous Bone Plugs" (See p 342)

DISCUSSION

DR. CHARLES DAVISON It seems to me that it has been satisfactorily proven both experimentally and clinically that autogenous bone transplants, when properly placed are not treated as foreign

We are still working at the problem and hope to present a more complete report at a later date

DR. H. M. RICHMOND I feel that Dr. Tarnowsky's

ent and asked me whether it was original work, and he suggested that my work should be published. I have reminded Dr. Tarnowsky that four of his

days for comparison of the processes of repair. Roentgenograms were systematically taken. Not

around the edge of a Lane plate but there was no callus uniting the ends of the fragments. The fracture was only supported by the beef-bone transplant.

JOSEF LUDWIG.
4. Bony union of the fragments in this position took place at a very late date with poor function

recent years agrees with this view. It is of course opinion being that uncombined osteogenic elements are

Dr. JOHN R. HARGAR From the reading of this subject and hearing it discussed, it is very easy for

that when the urinary tract is chronically infected, it is always infected and that it never does clear up entirely. A great many cases light up from time to time after various predisposing factors are manifest.

One of our men said here a few months ago in discussing this subject it would seem absurd to remove the urinary bladder because it was full of stones or was inflamed. Furthermore in the case of a joint,

often times when we are going to operate on the gall bladder we think that same way we may remove this organ or we may not, and then again we might.

gall bladders by drainage or removal, it is a safe and sound method.

Dr. MOORE (closing) I agree with Dr. Hargar that it is very essential and sometimes very difficult to make a diagnosis, but I believe that by a closer observation of the clinical history in these cases we will be able to do so.

In regard to drainage I am of the opinion that in most cases we drain only the surface without relieving the deeper or interstitial layers, and a gall bladder that has been drained in this way from 6 weeks to 3 months can never return to normal function whatever that may be whether it be that of a reservoir or as a pressure-gauge regulating the flow of bile into the intestine.

We have all seen in secondary operations nothing left but useless tracts or pathological remnants and nothing like a normal gall bladder.

With regard to pathology the object of my paper is to emphasize the importance of early diagnosis and of early operation to prevent secondary pathology. When the gall bladder is once infected, I think it should be removed.

treatment of acute pancreatitis consisted of drainage

In spite of the arguments that have been advanced against heterogenous bone pegs and in favor of ivory

have shown infection when there was no macro-

settled

was certainly dead when transplanted. It has been

is a mistake. I put in two or three screws or ivory

ASSOCIATED PATHOLOGY OF GALL BLADDER DISEASE WITH A FURTHER PLEA FOR CHOL- ECYSTECTOMY

DR FRANK D. MOORE read a paper entitled
"Associated Pathology of Gall-Bladder Disease with
a Further Plea for Cholecystectomy" (See p. 338)

DISCUSSION

By H. M. H. Moore has read

That has been my experience. Even when we have
the abdomen open we are often unable to tell whether
the gall bladder is diseased. Sometimes cultures

gizzard. If the two are stimulated they show a different contraction curve and in Locke's solution they show different types of rhythmic activity. There are also different types of peristaltic activity in the stomach. For example, there are normal waves of contraction starting as shallow ripples near the cardia and breaking into deep waves at the antrum, hunger contractions during the first stages of starvation, etc. In the small bowel there are rhythmic movements which move the intestinal content back and forth from one end of a short loop to the other, without forwarding it along the bowel. The forwarding is done by peristaltic rushes which usually arise in the duodenum, perhaps as very

sort of intestinal upset. For example trauma, inflammation and ulceration raise the metabolic rate, the rate of rhythmic contraction, the irritability and tone in the affected region. The result is a sharp peak in the gradient instead of a uniform ascent or descent. Toxins of various sorts depress the gradient, possibly more in some parts than in others. Drugs may raise or depress the gradient and may act differently in different parts of the bowel. These conditions manifest themselves by various symptoms—slowing of the intestinal current resulting in distention and constipation, acceleration of the current causing diarrhoea, reversal of the current with belching, nausea, vomiting, etc. In the case of a diseased appendix,

verse peristalsis may appear in any part of the tract

often the case

To describe the physiology of the different portions of the intestinal tract and their behavior

oxygen consumption of the muscle in different parts of the tract. The author believes there are similar

basic problems of nutrition, digestion, and gastrointestinal physiology
STANLEY L. ROCK

CORRESPONDENCE

PRACTICAL METHOD OF FIXATION IN FRACTURES OF THE MANDIBLE

To the Editor: I feel that

teeth. Credit for this unquestionably belongs to Dr. Thomas L. Gilmer of Chicago, who first pointed out its value in *Archives of Dentistry*, September, 1887. All methods subsequently published, including the one described in my article, in which this principle is utilized, are but modifications of the method of Gilmer.

ROBERT H. IVEY

Philadelphia

BOOK REVIEWS

CRITIQUE OF NEW BOOKS IN SURGERY

ALTHOUGH essentially an atlas the first four chapters of *The Pathological Gall Bladder*¹ are devoted to a general discussion of roentgenography in gall-bladder disease whether or not calculi are present. The authors technique is given in detail, the hints for interpreting the results is concisely stated and a statistical report given which shows about 85 per cent of correct inferences in the last 128 operated cases.

Both the technique and the interpretation in this work must be especially skillful since the shadows produced are of the most delicate sort. A thoroughgoing technique may require more than a dozen exposures before films of a quality adequate for diagnosis are obtained. Particularly is this true when attempting to make inference regarding a diseased gall bladder in which no lime-containing stones are present. The technique is primarily roentgenographic for it has been found that the

THE second edition of this excellent work² shows many minor changes, few topics having escaped revision in some particulars. Certain chapters have been enlarged and new references and

on neoplasms in our language. CASEY COLLEGE, CHICAGO

THIS interesting monograph³ is a critical and

III The Pathological Gall Bladder. JOURNAL OF SURGERY

one who is seeking to follow up this or all must

inherent property of smooth muscle to undergo rhythmic contractions and, second, a gradation in the strength of these contractions from the upper to the lower end of the digestive tract. Various extrinsic influences may start up and augment these normal contractions, for example stretching from the pressure of food or gas, irritation from inflammatory conditions, and chemical irritation from drugs.

HOLLS L. LUTHER

The Pathological Gall Bladder. Roentgenographically Considered. By Arvid B. Lennquist, M.D. and Ralph D. Leonard, M.D. New York: Paul B. Hoeber, 1921.

Neoplastic Diseases. Traces on Tumors. ed. ed. By James Ewing, M.D. Sc.D. Philadelphia and London: W. B. Saunders Company, 1921.

THE MUSCLES OF THE DIGESTIVE TRACT. Walter C. Alvarez, M.D. New York: Paul B. Hoeber, 1922.

of America. The vice-regal government established by Charles V. of Spain flourished for a time and at the middle of the sixteenth century was the most important dominion of the white race west of the Atlantic. In the interval between 1530 and 1821 sixty-four Spanish viceroys, only one of whom was born in America, ruled in succession in the ancient capital which Cortez had wrested from Montezuma. During this period three classes of people, quite distinct in character, appeared as subjects of the Mexican viceroyalty, Spaniards, Indians, and mixtures of the two. Such was the condition of Mexican society at the beginning of the nineteenth century when the revolutionary movements in Europe gave rise to a revolution in Mexico headed by Miguel Hidalgo. Hidalgo, the son of a farmer, was born in 1753. He was educated and ordained for the church, serving as curate in several places. Hidalgo was intellectual, his opinions on all subjects were in advance of the period, and he was the first to conceive the idea of an independent Mexico, not a helpless dependency of deteriorating Spain. Under his leadership (1810-1811) a movement for independence, the Grito de Dolores, was started, which was not to die. Hidalgo was eventually vanquished by the royalist forces, and with his lieutenants Allende, Aldama, and Jimenez, was executed July 31, 1812. This ended the first period of the struggle for independence in Mexico. Hidalgo's struggle for independence was continued by José M. Morelos who, until the age of 30, was a muleteer. He was then made a curate and later, like Hidalgo, became a general without taint of personal ambition. He led the independent troops from victory to victory, to be defeated by the royalists and condemned to death in 1815. This closed the

unselfish devotion to the cause, the mass of the population has never wavered in devotion to his memory. After the death of Morelos, the independent troops were headed by General Yturbe who was able but actuated by selfish motives, and in 1821 the Treaty of Cordova establishing the provisional independence of Mexico was coerced by him and O'Donoghue, the

little progress toward the establishment of a permanent and orderly administration. In 1835 the confederacy of states was changed into a consolidated republic, of which Santa Anna was the nominal president and virtual dictator. For the next 20 years through a series of turbulent revolutions, he was by turns chief ruler, and captive. In the meantime, in 1836 Texas declared and successfully maintained its independence and 9 years later in 1845 was admitted into the American union. A dispute concerning the Texas boundary brought on war with the United States, at the conclusion of which, Mexico ceded to the United States the territory north of the Rio Grande. Santa Anna, who had led the Mexican forces in the decisive struggle was finally deposed in 1855. In 1858

he gained the
of vigorous
church and

state. The church party took advantage of an international dispute to intrigue with the French, and Louis Napoleon sent an army of invasion. An assembly of notables declared for an hereditary empire and the Archduke Maximilian of Austria was induced to accept the crown. The struggle with the forces under Juarez continued until the hands of the United States were freed

asked what he meant to do about it under the Monroe Doctrine, he said that the situation

“Wait a minute. Of course, you know that if I get well this doesn't go.” The United States got well from the Civil War and disregard of the Monroe Doctrine did not go. Lincoln notified the French emperor that he must withdraw his troops, and sent an army corps to the frontier ready to

Emperor
to return
independence

stored. Juarez was succeeded in the presidency in 1876 by General Porfirio Diaz, a strong and sagacious ruler who remained in power for 30 years. When the aged Diaz was deposed, in 1911

After the revolution there was

AMERICAN COLLEGE OF SURGEONS

MEXICO

By WILLIAM J. MAYO, M.D. F.A.C.S. ROCHESTER, MINNESOTA

THE distance to the City of Mexico from the cities east of the Mississippi River equals that to southern California and the time required to make the two journeys is approximately the same. While San Antonio is 250 miles north of the Border this is the city rather than

Its medical profession is of the best, its newspapers are of unusual strength, and its public spirit is shown strikingly in the beautiful parks that make it one of the most attractive of American cities. Remarkable architectural evidences of the old Spanish occupation are close at hand. The Alamo of historic fame, is a well-preserved ruin of the Franciscan mission, built in 1772 in which in 1836, a group of 183 Americans to the last man died at their posts when besieged for 13 days by General Santa Anna's Mexican army. Among these gallant

Taylor's army was on the defensive between two mountains, his left on the mountain side, his right in a series of arroyos cut by flood waters. Santa Anna's troops rushed down on the right and were brought to confusion by the arroyos, which, like the sunken road at Waterloo, brought victory from what seemed certain defeat.

Pullman service beyond the Border is good and the journey to Mexico City is made very comfortable.

degrees during the entire year. The rainy season in this part of the country begins in June and ends in September the downpour coming at about the same time each afternoon. The third city of Mexico, Puebla, is beautiful, and very attractive to tourists.

The Mexicans are our nearest neighbors on the south. We should live with them as under the same conditions with our Canadian

amphitheater

On crossing the Rio Grande River one enters a truly foreign country and an ancient civilization. The contour of the land changes, rising gradually to the great central plateau of Mexico

at the city of Mexico, situated on a high plateau near Vera Cruz with

Mexico of 1845 and one of the most brilliantly fought battles in all history. Here General Zachary Taylor with less than 5,000 men, fighting against terrible odds, strategically defeated General Santa Anna with more than 20,000 men

HISTORICAL
the nature of these
them,
and as
a state under Spanish rule, the oldest
settlement of the French and English in the
New World. The conquest of the empire of the
Aztecs in 1520, by the brave and hardy Spanish
conqueror Cortez, followed closely the discovery

He is giving every possible support for the purchase of new equipment, and several fine hospitals are now projected. Seventeen years ago, President Diaz constructed a very fine hospital of 800 beds in Mexico City on the separated pavilion plan much like the Virchow Hospital in Berlin. The hospital covers a great deal of ground which is beautifully park-like. The Military Hospital, with 600 beds, under the direction of Dr. Francisco Castillo Najera is a very old structure in the oldest quarter of the city. This is to be replaced by a fine hospital in a beautiful suburb. The Military Hospital provides quarters for the sick wives and children of the soldiers as well as for the soldiers. The hospital staff is excellent, and the work is modern. Dr. Najera is an active, progressive man, and conducts the affairs of the hospital most intelligently. Spinal anesthesia with cocaine is used very largely, and we were told that in over 5,000 cases there had been no direct mortality from it. We witnessed several operations under this anesthesia, one especially clever for abscess of the lung.

We had an opportunity to visit the private sanatoria of Dr. Ulises Valdes and of Dr. Gabriel M. Makda. The morning we visited Dr. Valdes he performed among other operations, a subtotal hysterectomy for a large myoma, and I was much pleased to note with what great pains he saved both ovaries. He tied all knots by the one-forefinger method, manipulating with the forceps as dextrously as though they were his fingers, the short end of a catgut thread deep down in the pelvis. Dr. Makda performed a very skillful operation in which we were much interested, an amputation of the leg at the point of election just below the knee, after the method of Dr. Montero de Oca, a distinguished Mexican surgeon of bygone days; this technique probably is unknown outside of Mexico. The amputation

seller Foundation greatly interested in the subject of yellow fever has worked in conjunction with the Mexican Government for eradication of the disease. The domestic mosquito (*Stegomyia coelestis*) which carries the disease, lives in clear quiet water and is always to be found within three hundred feet of a dwelling place in drinking pools, wells, cisterns, tubs, and so forth. In Mexico this mosquito is not often found above an altitude of three thousand feet. Five per cent infestation of water is considered safe. Top minnows are being used to destroy the larvae of the mosquitoes. At first the native Indians objected very strongly to having these fish living

in the water. Captain Parks, who has occupied this position for more than 20 years. In Colima, Captain Parks showed us a record of his monthly examinations which included over 11,000 tests with an incidence of infestation of less than 1 per cent. This was a surprisingly good record and the town of Colima is accounted safe. Captain Parks is conducting experiments in breeding fish for destruction of those numerous forms of mosquito larvae which, unlike the *Stegomyia*, live in quiet but impure water. At the present time he is using thousands of minnows

with the hospitals, and to a great extent the students live in the hospitals. Most of the textbooks used in medical schools are in the French language and the system of education as well as the method and technique employed in the hospitals and operating rooms is essentially French. Practically every physician speaks French.

He attended
of the city,
The chief
gic subject,

An interesting paper
on yellow fever also was presented. The Roche

Professor
pathology
University of

Mexico

In Guadalupe there is an active body of medical men, and we had the privilege of attending a meeting of the medical association of the

the era of peace and prosperity ended, and 50 years of turbulence have followed during which there have been nine presidents.

The people of Mexico today may be divided into three well-defined classes: first, the native Indians, comprising the majority of the population; second, the Spaniards born in Europe or in Mexico, the latter often called Creoles; and third, the mestizos, or half-breeds, crosses between the

manages its own local affairs and all are bound together according to the amended constitution of 1857. The president is chosen by electors of the people in general election. There is a congress of two bodies, the senate and the house of representatives. The dominant religion is Roman Catholic, but all other forms of faith are tolerated. The public schools are supported by the state and the attendance law is well enforced. English is taught in all public schools. The scientific methods in education, like those in South

tion long before the Anglo-Saxons had emerged historically. Remnants of the Aztecs, who es-

testimony of the mental powers of the early people is their calendar which was carved in 1542 and is now built into the cathedral in Mexico City. Evidences of remarkable prehistoric Indian civilization are now being found in explorations in southern Mexico and Guatemala.

POLITICAL

they are happy and contented.

The people of the upper class in Mexico who comprise about 10 per cent of the population, are educated, prosperous, and, naturally, contented. There is not a more intelligent and courteous people in the world. They speak French as well as Spanish. Refinement is ingrained in them from their background of the culture of centuries.

The population intervening between the uneducated Indians and the cultured Mexicans, about 80 per cent, might be called the middle

estates that run from 1,000,000 to 6,000,000 acres of the most fertile soil, of the great mines, and of the petroleum and other minerals, one may in some degree appreciate this view point.

The upper class in Mexico hate the present

badly led are trying out theories which include

cannon fodder for these revolutions, and he is sick of his job. It is doubtful that another

people. All the thinking people of Mexico are

It is needed on our

MEDICINE AND SURGERY IN MEXICO

O'Driscoll, General Calles, secretary of state, has taken up the matter of improving the hospitals.

LATIN-AMERICAN SURGEONS

REPORT OF OFFICIAL VISIT TO COLOMBIA, VENEZUELA, AND CUBA FOR THE AMERICAN
COLLEGE OF SURGEONS BY EDWARD I. SALISBURY M.D. DENVER COLORADO

PART I

THE SPANISH MAJIN

SOUTHWARD HO! To the Spanish Main and our Brethren o' the Coast! It smacks of a romance of the sea, of conquest and depopulation but no for we bow in humble submission to the conquering graces of three more

The history of the Main, with its tales of conquest, of adventures, of colonization, and of piracy

| | |
|-------------|--|
| February 22 | Girardot to Hooda, aboard SS <i>Union</i> |
| February 23 | Arrived Honda, proceeded by rail motor-car to La Dorada. |
| February 24 | Lower river boat SS <i>Infanta</i> to Barranquilla |
| February 28 | Barranquilla. |
| March 3 | Barranquilla to Puerto Colombia by rail. |
| March 4 | Left Puerto Colombia on SS <i>Leona</i> |
| March 6-7 | Curacao, Dutch West Indies |
| March 8 | Puerto Cabello Venezuela. |
| March 9 | La Guayra proceeded by rail to Caracas, Venezuela |
| March 17 | Left La Guayra on SS <i>Asian</i> |
| March 18 | Puerto Cabello, Venezuela. |
| March 19 | Curacao Dutch West Indies. |
| March 24 | Cartagena, Colombia. |
| March 25 | Colon, proceeded to Ancon C. Z. |
| April 1 | Left Colon on SS <i>Tales</i> |
| April 2-3 | Puerto Limon, Costa Rica |
| April 6 | Havana, Cuba |
| April 13 | Left Havana on SS <i>Calamaries</i> |
| April 17 | Arrived New York |

THE VOYAGE

$$T_b \quad \epsilon \quad T_{\infty}$$

cannot tell me I am out that the comfortable ocean liner as by magic fades away and he finds himself pacing the deck of a rhanom ship

LITERARY

| | |
|-------------|---|
| January 18 | Left New York on SS <i>Santa Teresa</i> . |
| January 25 | Arrived Colon Panama |
| January 26 | Left Colon on SS <i>Santa Maria</i> |
| January 27 | Cartagena, Colombia |
| January 29 | Arrived Puerto Colombia proceeded to Barranquilla |
| January 31 | Lower Magdalena—River boat SS <i>Barranquilla</i> for La Dorada |
| February 8 | Arrived La Dorada, proceeded on rail around rapids to Beltrán. |
| February 8 | Upper Magdalena—SS <i>Marschal Sacre</i> for Girardot |
| February 9 | Arrived Girardot |
| February 10 | Via Girardot Railway and Sabana Railway to Bogotá |
| February 21 | Bogotá to Girardot |

are well to Miss Liberty became a bow-do-you-do to Mister Freedom. Freedom of the seas is really a wonderful thing—if not a bulwark, it gives at least a stimulus to the North American constitution. Night fell with a biting wind howling through on its way from the north.

city. Dr. Barrios and Dr. Chavira are among the leading surgeons in the city.

A visit to Mexico in the interest of medicine and surgery will be found most interesting and profitable. One should particularly study the tropical diseases, which more rapid methods of communication will gradually bring to our own people. The medical traveler is received with the greatest kindness by members of the profession and is accorded every courtesy by officials of the Government. Heretofore many unfortunately most, Americans who have gone into Mexico have done so for the purpose of commercial exploitation. They have been careless if not rude in their dealings with these sensitive people in whom courtesy is ingrained and on returning to America they have given their impression derived from experience with the lower classes. The

friendliness and charming hospitality accorded to us in Mexico caused us to leave with regret. Twelve years ago in company with Dr. A. J. Oschner as now I visited Mexico and I hope to go again in the near future. The relation of the United States with the Spanish American countries will in time when the broader more intellectual people of both countries know one another better become one of enduring friendship. Members of the medical profession can do much to promote cordial relations, for science has no country and its adherents meet on common ground. The officers of the American College of Surgeons expect to extend the membership of the association into Mexico, and there is no doubt that it will do much to cement the growing fellowship and friendship between the people of Mexico and the United States.

LATIN-AMERICAN SURGEONS

REPORT OF OFFICIAL VISIT TO COLOMBIA, VENEZUELA, AND CURA FOR THE AMERICAN
COLLEGE OF SURGEONS BY EDWARD I. SALISBURY, M.D., DENVER, COLORADO

PART I

THE SPANISH MAIN

SOUTHWARD HO! To the Spanish Main and our Brethren of the Coast! It smacks of a romance of the sea, of conquest and despoliation but no for we bow in humble submission to the conquering graces of three more of our American neighbors. To Colombia, Venezuela, and Cuba the College extends the hand

countries bordering upon the Caribbean Sea, or as it were to those republics bounding the Spanish Main.

The history of the Main, with its tales of conquest, of adventures, of colonization, and of piracy is perhaps better known among the nations of the world than the interesting story that accompanies the march of civilization to India, Australia, or to our own northern continent. The very mention of the name recalls many a romantic tale and conjures up the dreams of our boyhood past, when the midnight taper burned low and the blood curdled in our veins as the harrowing details unfolded disclosing the buried treasure or the doings of a Pizarro or a L'Olonous. An enchantment still reigns over those seas, coasts and islets, and a red-blooded man with a God-given imagination cannot sail the Main but that the comfortable ocean liner as by magic fades away and he finds himself pacing the deck of a phantom ship.

ITINERARY

- January 18 Left New York on SS *Santa Teresa*
- January 25 Arrived Colon, Panama
- January 26 Left Colon on SS *Santa Marta*
- January 27 Cartagena, Colombia
- January 29 Arrived Puerto Colombia proceeded to Barranquilla
- January 31 Lower Magdalena—River boat SS *Barranquilla* for La Dorada
- February 8 Arrived La Dorada, proceeded on rail around rapids to Beltrán
- February 8 Upper Magdalena—SS *Mariscal Sucre* for Girardot
- February 9 Arrived Girardot
- February 10 Via Girardot Railway and Sabana Railway to Bogotá
- February 21 Bogotá to Girardot

- February 22 Girardot to Honda aboard SS *Union*
- February 23 Arrived Honda, proceeded by rail motor-car to La Dorada
- February 24 Lower river boat SS *Junia* to Barranquilla
- February 28 Barranquilla
- March 3 Barranquilla to Puerto Colombia by rail
- March 4 Left Puerto Colombia on SS *Lex crada*
- March 6-7 Curacao Dutch West Indies
- March 8 Puerto Cabello, Venezuela
- March 9 La Guayra, proceeded by rail to Caracas, Venezuela
- March 17 Left La Guayra on SS *Asian*
- March 18 Puerto Cabello, Venezuela
- March 19 Curacao Dutch West Indies
- March 23 Cartagena, Colombia
- March 25 Colon, proceeded to Abcon C. Z.
- April 1 Left Colon on SS *Tales*
- April 2-3 Puerto Limon, Costa Rica
- April 6 Havana, Cuba
- April 13 Left Havana on SS *Colomares*
- April 17 Arrived New York

THE VOYAGE

The *Santa Teresa* a commodious and well appointed steamer of the Grace Line, carried me from the turmoil of our metropolis on a murky and cold afternoon during the month of January. Farewell to Miss Liberty became a how-do-you-do to Mister Freedom. Freedom of the seas is really a wonderful thing—if not a bulwark it gives at least a stimulus to the North American constitution. Night fell with a biting wind howling through our shadowy masts with their derricks and ropes. By bed-time a look from the starboard rail told us that our good ship had left Barnegat and the lights of the Jersey shore far behind.

On the morning of January

sunshine—the spell was upon us and lo! we no longer steamed in a modern ship with the Stars and Stripes floating above us but sailed straight away upon a goodly *bergantine* flaunting at the mizzen-top the gold and red emblem of Spain.

Starboard the helm, and we're off for the Windward passage!

"Swiftly through the foaming sea
Shoots our vessel gallantly
Still approaching as the flies
Warmer suns and brighter skies

And so we stood out to sea with well-filled canvas while the ropes creaked under the strain

phantom ships rising peacefully at sunset the cove while ashore knelt a little band, and across the waters their voices arose, chanting hymns of thanks to their Maker for the new found land.

Soon we were in the quiet waters of the Windward passage and our course laid to avoid the narrow channel between Tortuga and

There is perhaps no place in the seven seas more loved or more feared by the manner than the Caribbean. This beautiful turquoise of the Atlantic, reflecting the deep blue of a tropical sky, can become on occasion a veritable inferno, when contrary winds lash its currents into foaming mountains and toss sturdy vessels about like toys. Truly the early adventurers must have felt that El Dorado was nigh when they sailed into that sea in calm seasons, and on contrary days that the old superstition that the hand of the devil would reach out of the unknown sea and

Const) Castillo de Oro included that part of Tierra Firme (as the whole was named) now

Puerto Bello and Cartagena were strongly fortified by the early Spaniards, for it was here that the *bergantines* and caravels and the great carracks laden with treasure gathered and awaited a place in the convoy of galleons or men-of-war to escort them to the mother country

COLOMBIA

Cartagena

Cartagena was the largest, and is today the most interesting city of the coast. Protected seaward by a coral reef and landward by the fortress of

harquebus and pistol while cries went up with every cut and thrust of the blade. A plank was pushed out over the high poop deck, and one by one to the goad of a boat hook, the defeated went to their death. Some few met their end aloft and were left to dangle from a yard-arm an ex-

THE CARIBBEAN SEA

On the starboard is Cape Mayas, the eastern tip of Cuba and a few miles up the southern shore are Santiago and Guaninamo. In the blue waters of the Caribbean that wash these strands lies the fleet of Admiral Cervera, who bravely went out to meet us July 4, 1898, knowing defeat certain.

As Spain's power on the seas was born in the West Indies, so it perished in the place of its birth.

the while ruminating on the past. Here were the embrasures for the great cannon, there the slots

entrance to a tunnel of escape, and another more

dungeon just as they were the day the Mother Church put an end to the intolerance of the Spaniard. Strange that Spain should carry her troubles, coming out of the Moor invasion to a new land but our Puritan did the same.

I found an old history of Cartagena in one of its bookshops. It is replete with old legends and traditions of the place. It contains stories of conquest and war of the bravery of an adventurer

worthy of translation.

Of medical lore I might mention one little story connected with the founder of Cartagena de Indias (Cartagena of the Indies) as it was called in contradistinction to Cartagena in Spain.

Cartagena was founded in 1533 by Don Pedro de Heredia. The locality had previously been visited by Bastida, the founder of Panama, by Vesputci, and by others, but the strong resistance of the Indians prevented them from establishing a colony.

and killed three of them. This I recite as an example of the plastic art in surgery as early as 1530.

Cartagena is a city of perhaps over thirty thousand without a water supply except the

filtered drop by drop.

Other Colombian Ports

The other great port is Puerto Colombia near the mouth of the Magdalena, but it too is separated from the river port Barranquilla, by a railroad.

Sabanilla was the ancient port to the river and sea, but time made a sand-bar that necessitated

The Magdalena River

The capital of Colombia is Bogotá, and is situated on a high plateau just over the eastern range of the Andes. The principal approach to the capital is by the Magdalena River which flows in a valley formed by the eastern and central ranges of the Andes. If memory of geography serves me rightly the Magdalena ranks fourth among the rivers of South America—the order being Amazon, Orinoco, Paraná and Magdalena. Ocean-going vessels cannot enter the river or La

Guayaquil. This will be a great advantage in the handling of shipping as it can be transferred directly to and from ocean vessels and river steamers.

to the chronicles of his early life to show his

times and says that now cured but finding his once comely nose deformed and of bad color Heredia, burning with wrath, sought out his aggressors, challenged them in unequal combat,

The trip up the Magdalena can hardly be equaled even by a sojourn on the Nile. With favorable conditions, viz. plenty of water in the river and aboard an express boat one should reach

boat carries one up the *rin alta* (upper river) to Girardot at the head of navigation. The night is spent at this river port and the trip continued by rail to Bogotá a full day's travel over the Eastern Cordillera

by close walled fences. Scattered out upon the plains and at the river a brim were small herds of cattle. Now and then we passed or stopped at native villages where the populace came down to meet the express—a weekly event among the attractions of the town. Daily there were other stops at the wood supply stations, and at these times we sweltered from the intense heat and were greatly annoyed by the mosquitoes. Each night we suffered the same tortures—because of low water navigation was dangerous, and we tied

country and keep one entertained. Some will try their knowledge of English with you, and you always feel that perhaps they are just a pace

limited supply of carbonated water is sold at the bar or the traveler may bring a case or two aboard.

I left Barranquilla Tuesday evening, January

delta to meet the ocean. Once out upon its broad expanse we turned our prow toward the Southern Cross and began our ascent of the Magdalena.

The bed of the river is quite tortuous, and the channels for the boats change from day to day

napping and made it. I was thus obliged to make up a song-song rhyme to suit that stage of the game and apparently it had the desired effect.

Each day brought new sights and wonders. After two or three days we were impressed by the wealth of bird life. Continually we saw great flocks of ducks, parrots, parakeets, and *gomas*. The *goma* is the heron or egret bird, and there are several distinct varieties—the black, white grey and even the rose-colored heron. At times there would be hundreds of these birds standing in the shallow water over a sand-bar. Whenever our boat passed close to a wooded bank, there

to see
spring from the bank and strike a bird wading at

definite form and the terrain spread out into wide

or alligator—the first one of our boatmen who fell overboard, and the other a boy or young man who was found the next day in one of the ports—his head only was recovered. The largest of these animals or reptiles appears to be twenty five to thirty feet long and possibly three or four feet across the back. They appear in enormous numbers—in one small group I counted thirty-six.

Baranca Bermeja

The end of the first week brought us to Baranca Bermeja (Vermilion Bank) where the central depot of the Tropical Oil Company is located. The oil fields of this company are some miles back in the jungle along the Rio Colorado,

the earth is a red clay—hence the name of the town—Vermilion Bank. The tributary river whose waters are colored by this clay is named Rio Colorado or Red River.

The sixth day of February was spent on a sand-bank, from which we finally released our selves by carrying the end of the cable ashore and making the other several miles into deeper water.

La Dorada—Upper Magdalena River

On February 8 we reached La Dorada, the end of the lower river travel. After transferring mail and baggage we were transported by a narrow gauge railway around the rapids to Beltrán. This line of railway passes through a variety of country. For a short way to Honda it follows the

shipping point from the mines of the Cauca Valley beyond. The road turns abruptly back from Managua to the river at Beltrán. At this point we embarked on the upper river boat *Mariscal Sucre*. The crowd on this little boat exceeded many times the accommodations. There were hardly enough staterooms for the lady travelers, and the men all packed on and under tables and benches, and upon the few cots provided. A bribe of a peso to one of the deck boys permitted me to spend the night on deck on one of



Magdalena River and Tributaries, Colombia



City Wall, Cartagena, Colombia

the cots, with fifty others "camping" in the neighborhood. Everyone was stirring at day break, and one was well repaid for rising early. The boat was forging ahead through rapids with

Magdalena. New verdure greeted us upon every side and in the lifting haze dim forests of *balsa* *cebs* and *cebs* were seen covering the adjacent mountains.

As we steamed along the river had all the appearances of one newly discovered. Flanked alike by jutting rock and bamboo the upper river I truly beautiful. Occasionally far to the westward we could catch a glimpse of Mt. Tolima with its snow-capped peaks, strange to contemplate when you consider that it is only four degrees from the equator. As the morning wore on we met many *balces* or rafts, and *chompas* floating down-stream with great cargoes of pottery and produce for the native markets. Along the rocky flats near the villages the populace were out taking their daily bath-toen, women and children alike—while just at the water's edge the family laundry was in full process. Further up-stream Indians were in

such *calzones* or *calzones* in the swift-flowing stream and it seemed to delight them to ride the waves caused by the passing of our boat.

Glirardot to Bogotá

We arrived at Glirardot at sundown and betook ourselves to Hotel San German, thankful to be



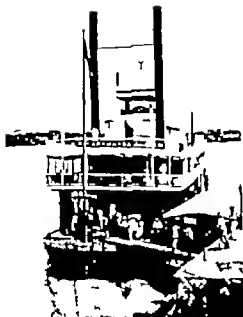
Belver Monument, Cartagena, Colombia

free from boat-cabins and mess-tables. The tropical hotel is a marvel. You pay for a bed rather than a room. I shared a room with traveling companions, a man and his wife from the United States. We had each a corner in a large *alcove* room, each cut screened apart from the rest of the space. Beds are not in use as they are

with mosquito nets.

In the morning our *equipajero* called us in order to be off for Bogotá. An *equipajero* is a sort of courier who travels up and down the river and cares for your baggage in its many transfers. He is indispensable and one of these men can care for a number of passengers. He hires porters at every change and guards your belongings. The transportation companies do not have a baggage department to care for your trunks. This is left to the *equipajero* who is usually quite loyal to his customers.

Our train left at eight o'clock for the climb over the mountain. It is a slow and dusty trip until midday. By that time the fields of banana and sugar cane have been left far below and we



River Boat of Lower Magdalena

stop for lunch in a more temperate clime. The profusion of fruits at La Mesa is marvelous. This mountain stop has the advantage of receiving in its market the fruits of the tropic and temperate zones—grapes, apples, peaches, strawberries, melons, as well as oranges, bananas, mangoes, *pitayas*, *camu camu* and the hundred and one other delicately flavored fruits of the tropics. At Esperanza, the next stop, one experiences a delightful change in the atmosphere and vegetation. It becomes pleasantly cool while all about are beautiful palms and shading trees. Flowers are blooming in profusion. Bougainvillea, hibiscus, acacia and royal Poinciana are everywhere. Here many of the travelers stop to become accustomed to the change before proceeding to Bogotá, which is eighty-six hundred feet above sea level. The journey from here is very interesting. Farms with corn and wheat, and plantations of coffee and cacao spread out in one beautiful vista. The air becomes cool and clear and when at last we reach the tunnel, everyone prepares



Capitol, Bogotá, Colombia

blast of the *pedras* makes the stranger wish for furs, and the native instinctively ties his kerchief over his mouth and nose that he may not contract pneumonia.

Facilitated as the roads are of a different gauge—the Girardot Railway being a yard gauge and the Sabana a meter. It is only in recent years that the Girardot line was built, as previous to that time the old mule trail was used to Hooda, where freight was transported to the river boats. The Sabana Railroad has been in existence for many years in fact it was one of the first built in Colombia. When it was decided that progress in transportation meant the building of railroads, the capital was of course the first city that should have one. Rails, engines and equipment were dragged up the trails over the mountains to the plains, and construction proceeded from the center of the country instead of building it from its sea and river ports.

Plateau of Funza

The great plateau of Funza is most impressive to view. After the long and hot tropical trip one feels as if he were in a fairy land. As far as the eye can see are rolling plains and verdant *sabanas* reaching out to the faint rim of mountains that enclose them. Fields green with growing wheat, millet, and barley, beautiful herds of Holstein and other cattle grazing in pastures where meandering brooks flow make a picture of industry and contentment. To add beauty and quaintness to the scene are the little white



"Spotted Ties" and Punctum Bridge, Walcott
Curacao, Dutch West Indies

are edged by rows of majestic eucalyptus trees, giving a most attractive effect. The eucalyptus tree is not indigenous, but was imported many years ago from Australia.

The native population, that is the gentry of the mountainous and plateau region is mostly Indian. They are a simple folk and have a rather comely appearance with rounded faces of an olive hue and rosy cheeks, faces of beings upon whom the strain of life it seems has never fallen. They go about with their wool ruses over their shoulders, a quite contented lot. Seldom they travel and very few of them have ever visited the falls of Tequendama, where this cataract tumbles six hundred feet (three times the distance of Niagara) from the very edge of their landscape to join the head waters of the Orinoco. It can truly be called one of the wonders of the world yet to these people its existence is mere legend.

Indeously there arrived in these regions three expeditions, one each from the North, South and East. The incident occurred in 1538 when

Don company III had traveled up the Orinoco and Meta rivers, having started on his long search five years before with four hundred well armed and provisioned

men. Following his arrival came Sebastian de Belalcázar an associate of Pizarro in Peru. He left Quito after the conquering of the Incas, and was in search of another civilization and to live far to the North. Quesada evidently played

his end he settled peacefully with the other conquistadors. To him is credited the founding of Bogotá, or Santa Fe as it was named and declared a city by Charles V. In 1540 Barail was the name of the old Indian capital, and thus today has developed the name Bogotá or Santa Fe de Bogotá.

Bogotá

It was dusk when our train reached Bogotá. On our approach we could see the twinkling lights of the city nestled at the foot of the mountains Guadalupe and Monserrate. The station is a modern one with train sheds and gates—quite fitting for the capital. All was bustle and hum in the streets, with coaches, autos, and tram cars in profusion. I was whisked off to my hotel (one that I had been a guest in several years before) and I began preparations for an enjoyable week of work and association with the medical faculty of Bogotá.

The city has about 160,000 inhabitants, a great many more than industry can care for hence there is a great percentage of pauperism. The climate is delightfully cool and pleasant during the day but it is rather uncomfortable indoors at night, as no provision is made for heating the houses. Bogotá is noted for its beautiful buildings and churches, the cathedral being a magnificent example of the Roman type.

peaks there is a chapel to which many people make pilgrimages. The scene is a walk on the mountains. Suddenly the sun came out illuminating the fleecy cloud-banks on the mountains, and there suspended in mid-air was the little white chapel, a perfect miniature upon porcelain. The

all the time he had only moment

In the of the Spanish government in South America. In the Palace of San Carlos were read the declarations of the King which were law and life to the New World subjects. In this same building I met the Secretary of External Relations, Señor Dr. Antonio José Uribe. I was introduced by my friend, Dr. Carlos Adolfo Urueta, former minister from Colombia to Washington. Both of these men were influential in the Colombian ratification of our recent treaty with that country which

Bogotá to Barranquilla

I rather dreaded the return trip down the river. After finishing my business, it was too late to catch the express boat, so I determined to try my luck in catching intermediate boats. It worked very well. The first day was spent going down the mountain to Girardot, where as usual one must remain overnight. I was fortunate in obtaining accommodations on the upper river steamer

Beltrán, where we had embarked on our upstream trip. Honda was reached the next afternoon, where I learned that a boat would leave La Dorada the following morning. It was out of the question to go by train that night, and the morning train left too late, so after meeting the general manager of the railroad and explaining to him my desire to catch the boat, he placed at my disposal a motor bus on car wheels which landed me safely in La Dorada by sundown. The *Juia* left port early the next morning and arrived in Barranquilla four days later on February 18.

COLOMBIA TO VENEZUELA

Departure

was seen suffering from dengue, or break-bone fever which I probably contracted along the

lower Magdalena and continued to have until after reaching Caracas.

Caracas Dutch West Indies

Two days were spent in Willemstad, Curaçao, Dutch West Indies, and one day in Puerto Cabello, the port for Valencia, Venezuela, before we reached La Guayra on March 6.

Willemstad is a very pretty little port with an inland harbor. The town lies on both sides of the inlet and is connected by a pontoon bridge. This bridge is operated as a private enterprise and a toll of two cents for crossing is charged to persons wearing shoes, while only one cent is levied upon the barefooted or those who wish to remove their shoes and carry them. When a steamer is entering or leaving the harbor the bridge is swung back by a cable that is wound upon a steam windlass. The inhabitants are a mixture of Dutch and Spanish, and so is their language. Curaçao is a colony governed by the Dutch and enjoys a free port. I was able to supply my wants in American made goods at prices several cents cheaper than at home.

VENEZUELA

Puerto Cabello

Puerto Cabello is a rather busy little port and has a small shipyard. In the plaza near the wharf is a rather dignified monument erected to the officers and soldiers of the United States who aided the Bolivian States in the war of separation from Spain. It bears the shields of Venezuela and the United States, and the whole is surmounted by a golden spread eagle.

Caracas

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the coast range, and, having an altitude of three thousand feet, it enjoys in the tropic belt a temperate climate. The region about Caracas in the pre-Spanish days was inhabited by Indians. Within ten or twelve leagues of this plain it is said were 150,000 Indians, with more than thirty caciques or chiefs. These were conquered by Don Diego de Loanda, and the city founded by him in 1567. Today it numbers 100,000 inhabitants, and architecturally is a beautiful city.

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Señor Manuel Segundo Sanchez, a banker by

profession, but the foremost historian of Venezuela. Señor Sanchez possesses a delightful personality and a brilliant mind. He is a true lover of his native land and was one of the representatives of his country at the presentation and unveiling of the equestrian statue of Bolívar in Central Park, New York City, in April, 1921. With him I visited the birthplace of the great Bolívar, which is being restored by the nation. Señor Tito Salas, to whom I was presented by

Fellows in South America, and by their sincere interest in the American College of Surgeons.

COSTA RICA — PUERTO LIMÓN

The Havana boat stopped for two days at Puerto Limón, Costa Rica, where I met Dr. Facio, Superintendent of the United Fruit Company Hospital, and his two assistants, Dr. Montenegro and Dr. Jimenez, all very able men from North American schools and hospitals.

CUBA — HAVANA

I arrived in Havana on the *Tales* on April 6, and spent a week in that wonderful city. I need not describe Havana, as the port is quite familiar at least in story to nearly everyone. The harbor where our *Maine* lay burned for so many years is a very busy one, and the docks and wharves are all of modern construction. The city is a mixture of the old and the new, churches and edifices of Spanish design beside modern steel and con-

Colombia the place of his death. Over the tomb is a beautiful monument of marble, with a standing figure of Bolívar—the whole the work of the sculptor Tenerani. The Pantheon immortalizes many other patriots and statesmen and cherishes tombs or tablets to their honor.

I spent eight interesting days in Caracas, visiting its buildings, viewing its art, and in happy contact with many of its citizens, outstanding among them the members of our profession.

TO PANAMA — CANAL ZONE

I left Caracas on March 17, boarding the *SS Ision* of the Leyland Line at La Guayra that night for Colon, where I arrived on March 25.

before obtaining reservations on a steamer to

the race track, and the *jai alai* games where one can gamble on the future. Havana has several clubs, but the Country Club possesses the prize golf course, where royal palm trees constitute hazards, along with two brooks and a sizeable river. I thoroughly enjoyed eighteen holes on this course with Dr. Carlos E. Finlay of Havana and his brother Mr. George Finlay who had returned to his native health from New York for his winter vacation. I was reluctant to leave

is no "obscure Law" of course, but I did not see one instance of the abuse of the use of liquor.

HOWARD BOUND

The *Calamarras* of the Fruit Line was my home-bound ship. It left Havana on the evening of April 13 and, after affording us a happy Easter aboard and a delightful voyage, landed us safely in New York on April 17.

He was much elated over his reception by the

PART II

COLOMBIA

The Welcome

I S. ... American ...

Panama difficulty and has greatly aided the restoration of our former friendly and mutual relations.

Mr. Philip very graciously arranged a meeting for me with Hon. Dr. Carlos A. Urueta, the Colombian minister to Washington, who was home on a leave of absence. Dr. Urueta introduced me to Dr. Luis Filipo Calderón, rector of the Faculty of Medicine, to whom I stated my mission. The rector, not being a surgeon, appointed Dr. José M. Montoya to call a meeting for me.

Committee on Credentials

At a meeting on February 16 Dr. Pompilio Martínez, the dean of the surgeons of Bogotá, was nominated as chairman of our credentials committee together with the following members: José M. Montoya, orthopedist, Bogotá; Secretary.

Rafael Utrero, gynecologist, Bogotá.

Juan B. Montoya y Flores, general surgeon, Medellín (representing Central Colombia).

Rafael Calvo, C. otologist, Cartagena (representing the Coast).

On the evening of February 19 a general meeting and dinner at the Gun Club was arranged by the committee. The rector of the Faculty presided, and after an elaborate banquet he gave a toast to the College for the interest shown in coming to Colombia on such a friendly mission. I responded to the profession in Colombia, and to the future of their hospitals which I judged from the signs of progress in hospital work among them. A discussion of the American College of Surgeons followed which brought forth enthusiastic utterances as to hospital progress in case they become a part of the College.

Bogotá — Medical Center

Bogotá has always been a medical center in the New World and today contains the principal

school of medicine in the country, a branch of

In the New World is somewhat obscure, however, some data are available in the old chronicles. The name of García Fernández is mentioned as the physician who accompanied Columbus on his first voyage to America. Many years after, in 1579, there came to Bogotá to practice medicine the Licentiate Don Alvaro de Anghón, the first *Médico Diplomado* whose name is recorded. In 1639 Dr. Diego Henríquez came from Spain with the title of *Protomédico* whose commission was to practice

was low established in this college in 1758 when after the death of Henríquez, the Viceroy appointed Roman Gancino as *Protomédico*. This school received a royal charter in 1801 and continued to teach until the founding of the Republic, when Congress established the national university with its department of medicine. The school of medicine is well housed in new buildings, some of which are still in course of construction. Its laboratories of anatomy, pathology, bacteriology, and chemistry are up to the minute in every way, a credit to any school. It lacks a practical course in physiology and has no such laboratory. The curriculum is planned for six years, and clinical work is given in the last four years.

Hospitals

The principal hospitals of Bogotá are the San Juan de Dios, Misericordia, and Marley. The first named is the great charity hospital. It is located in the heart of the city and though it is intended for about three hundred patients, it houses twice the number. This congestion and crowding is marked to the observer. The hospital is in the charge of Sisters whose number is somewhat limited, just enough for supervision, hence the nursing system is inadequate.

The Misericordia is the children's hospital and has a capacity of one hundred and twenty beds. Its daily census runs about seventy-five. Here the proportion of Sisters to patients is higher and more attention is given to nursing.

Marley is a private hospital, but Sisters are paid to supervise it. There are several clinics, or *casas de salud* owned by individual doctors, some in the care of Sisters, and others under women trained for the work. I visited two of

profession but the foremost historian of Venezuela. Señor Sanchez possesses a delightful personality and a brilliant mind. He is a true lover of his native land and was one of the

Fellows in South America, and by their sincere interest in the American College of Surgeons.

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I spent eight interesting days in Caracas, visiting it, basking, viewing its art, and in happy contact with many of its citizens, outstanding among them the members of our profession.

TO PANAMA—CANAL ZONE

I left Caracas on March 17, boarding the SS *Isma* of the Leyland Line at La Guayra that night for Colon, where I arrived on March 25. The *Isma* in charge of her very able and friendly master, Captain Thomas, stopped at the usual way ports, affording time to visit again those interesting places, Curaçao and Cartagena.

I was delayed in the Canal Zone a full week before obtaining reservations on a steamer to

the race track, and the *jai alai* games where one can gamble on the future. Havana has several clubs, but the Country Club possesses the prize golf course, where royal palm trees constitute barriers, along with two brooks and a sizeable river. I thoroughly enjoyed eighteen holes on the *Cuba* and *Florida* of Havana.

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HOWARD BOUND

Cleveland, who was just returning from a mission for the College to the republics below the equator. He was much elated over his reception by the

Experimental Laboratory

Dr Bernardo Samper and Dr Jorge Martinez conduct a private laboratory in the city which is equipped to do all routine tests as well as produce biologic products. They manufacture vaccines anti-diphtheritic and anti-tetanic sera, and conduct experiments in the prophylaxis of animal diseases. A North American veterinary is attached to the laboratory and quite elaborate studies are made of anthrax, piroplasmosis

veral
Dr
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typhoid vaccination among the students, firemen, policemen, and soldiers who were stationed there. I felt that it would be a real test of the efficacy of vaccine, as no particular anti-typhoid sanitary measures were carried out. Accordingly I was anxious to peruse the statistics of the experiment. Dr Martinez informed me that out of ten thousand who were vaccinated, eighteen subsequently had typhoid and only one died, whereas out of ten thousand of the general

profit, but as a philanthropic work to provide a hospital for the city, with the hope that at least the interest on the investment will be earned.

Cartagena

Cartagena is also a medical center and has a small medical school. Its equipment is rather meager and there is not ample material for clinical study in the small charity hospital. Dr Rafael Calvo, a member of our credentials com-

North American nurses are in charge. The laboratory and X-ray departments have technicians from the States.

The committee on credentials in Colombia is compiling a list of its eminent surgeons, whom they will recommend for Fellowship in the College.

*VENEZUELA**Arrival*

On my arrival in Caracas, I visited our minister Mr. Willis C. Cook, a very gracious and affable gentleman, who I learned had just arrived in Venezuela to take up the duties of his post. He recommended me by letter to the Minister of External Relations, Dr. Tinoco Chacin, whom I visited in company with Señor Manuel Segundo Sanchez. Dr. Chacin received me warmly and welcomed any affiliation that might be made between the surgeons of the Americas. He tendered his hearty support and offices in fostering such an affiliation.

Dr. Luiz Razetti, distinguished surgeon of Caracas to whom I presented my credentials,

Medellin

Medellin is the capital of the Department of Antioquia. It is a city of 70,000, and quite progressive. A railroad connects it with the Magdalena River at Puerto Berrío. Dr. Juan B. Montoya y Flores was nominated to represent this district on the committee on credentials. Dr. Flores conducts a small private hospital called "Casa de Salud la Samaritana," and Dr. José V. Maklonado is associated with him. There is another *casa de salud* which is managed by Dr. Gil J. Gil and his associate, Dr. Alfonso Castro.

Barranquilla

Barranquilla has several small hospitals or clinics. The Clinica Moderna is operated by a group. La Casa de Salud is the private hospital of Dr. Jorge E. Calvo and La Clinica Americana is a small hospital and clinic conducted by Dr. Willis Middleton and Dr. L. M. Drennan, two of my former associates.

College of Surgeons and the purpose of my visit. All were strongly in favor of the College.

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Committee on Credentials

The committee is quite representative of the surgical specialties and all are men of high professional attainments. They are



Hospital San José, Bogotá, Colombia

these one under the jurisdiction of Dr. Pompilio Martínez, and the other of Dr. Manuel A. Peña.

complete hospital record system. Complete histories and progress records are kept of all patients. I watched several of the prominent surgeons operate some difficult cases too, and all showed fine surgical skill and judgment. I attended the dedication of the new San Juan de Dios hospital in La Florida, a suburb. It is built on the isolated pavilion plan and will probably accommodate twelve hundred patients when completed. The buildings were originally intended for an insane asylum but a new site was obtained in the country and the plans were changed to build them as hospital units.

The surgical society of Bogotá has been constructing a new hospital also to be known as Hospital San José. It has been under construction for about twelve years, work being carried on as funds are available. This is a beautiful

ments of the institution. Nothing is waiting except a staff of doctors and nurses to step in and receive the patients.

The Nursing Problem

The nursing problem is as perplexing in Colombia as in many of the South American republics. Speaking broadly there are no nurses, and several reasons exist for their absence. In the first place, hospitals have been charitable



New Hospital C. Vargas, Cartagena, Colombia

with the skill of the individuals in charge to administer. No one entered save the poor. The better classes called a physician to their homes, where their friends and relatives gathered, stood watch over the sick one and cared for him. It was a work of love and not a business. Nuns gave their life to it as God's work, not as hirelings.

Another phase developed from an increase in the number of inmates in these hospitals with a corresponding decrease in the proportion of nuns to care for them. To aid them the poor were hired to work in the wards, so nursing became manual labor. In consequence of these two conditions, nursing has not become the profession of merit and the real science as we know it in this country.

A third point held by some is a moral one. It is not considered conducive to good morals for young women to study along medical lines and then go forth to care for strangers. The young women necessary for such work, who are educated and come from good homes, are not free to enter the nursing profession. In fact women do not participate in the affairs of public life.

One of two things will be necessary to place nursing on the basis of a merited profession and either will bring about the other as well. The people will become educated (as we say in the

or the public will begin to develop nursing as a profession, which in turn will elevate the standard of the hospitals, and all patients will seek the protection and advantages of the hospital.

The medical profession of South America realizes the need for nurses but it is difficult to bring about the necessary change in the mind of the public to encourage training school

The committee recommended for Fellowship a group of qualified surgeons. This list though not complete includes

Havana

Ernesto de Aragon
Julio Arteaga
Gonzalo Arostegui
Clandio Basterrechea
Julio Ortiz Cano
Arturo G. Casariego
Gabriel Casuso Jr.
José E. Casuso
Manuel Costales
José de Cuba
Jorge Dehogue
Gustavo Duplessis
Francisco M. Fernandez
Santos Fernandez
Fruque Fortua
Nicolás Gomez de
Rosas
Rodolfo Gural
Eusebio Hernandez
Alberto Inclan
Pedro Lazothe
Francisco Lera
Anton Luis
Sergio Garcia Mar
raz
Emilio Martinez
Rafael Nogueira
Ricardo Nubez
Felix Pagés
Ignacio B. Plasencia

Luis F. Rodriguez
Molina
Emilio Romero
Alberto Sanchez de
Bustamante
Fruque Fernandez
Soto
Benigno Souza
Epidio Stincer
Agustin de Varona
Camaguey
La Herran
Josto Lamar
Cardenas
Luis Ros
Cienfuegos
Alfredo Mendes
Manzanillo
Ciro Leon
Matanzas
Julio Ortiz Cofre
Pinar del Rio
Leon Cuervo
Sagua la Grande
Enrique Yana
Santa Clara
Olivio Lubian
Santiago de Cuba
Antonio Goemica
Donato G. Marmol
José A. Ortiz

Hospitals

Hospital conditions are much better in Havana than in many countries the total number of hospital beds being about six thousand. There are five training schools for nurses in Cuba, two being in Havana and one each in Santiago Camaguey and Matanzas. The largest city hospital is the Calixto Garcia of about nine hundred beds. It has recently been given to the University of Havana Medical School as a teaching hospital. The total cost of its eighteen buildings when finished will be about \$700,000.00

with three hundred beds has a training school of twenty five pupil nurses, and employs twenty eight graduates. The Maternity Hospital is conducted by the Health Department, and it too has a training school. There are six graduate

nurses and eight pupils. Eight fourth-year medical students act as internes and assist in over three hundred labors per year. This institution comprises a day nursery and instructions are given to mothers on infant feeding and care.

The Emergency Hospital has one hundred beds the Asylum for the Insane two thousand beds and the Leprosarium one hundred beds.

There are eight hospitals in Havana belonging to Spanish Associations. One of these Associations has 70,000 members, each of whom pays Two Dollars a month and receives free medical and surgical treatment as well as hospitalization. Membership also includes club privileges, and the advantage of courses in bookkeeping, type writing, languages, mathematics etc. Many of the Associations have outside enterprises, such as theaters, whose earnings are turned into the general fund.

These Associations were formed when Cuba was a Spanish colony. The Spanish emigrant coming to Cuba was always sure to have his attack of yellow fever and the men of his native province in Spain banded together to give him medical care until he acquired his immunity or to give him a respectable burial in the event of his death. The Associations are usually named after the provinces of Spain, and their hospitals are models of completeness. I visited Covadonga the Asturian Association hospital where Dr. Fresno is chief surgeon and where I saw him very skillfully do a nephrotomy for calculus. This hospital has beautiful grounds and airy pavilions that accommodate about eight hundred patients. These hospitals are for male patients only and the nursing is done by men who are trained for the work.

Medical School

The medical school is a part of the University of Havana. I met the distinguished rector of the University, Dr. Carlos La Torre (D.Sc. Harvard Hon.) and also the Dean of the Medical School, Dr. Diego Tamayo. Dr. Tamayo has established a dispensary in Havana and in connection with it conducts a post-graduate school in the specialties. The clinic treats about fifteen thousand patients per year and fills a long-felt need for the poor of the city.

The medical school is now in the process of being moved to new grounds and building and place the school within the grounds of the new University Hospital, recently acquired from the Government.

Luis Razzetti, general surgeon and orthopedist, chairman

Salvador Cordoba, urologist secretary

ship a selected group of the prominent and qualified surgeons of Venezuela. A partial list of these includes

Miguel R. Ruiz, Caracas

Adolfo Bueno, Caracas

Martin Herrera, Caracas

P. D. Rodriguez Rivero, Puerto Cabello

Hospitals of Caracas

The principal hospital of Caracas is Hospital Vargas. It received its name from one of the republic's early physicians and statesmen. Be-

them in official circles they are called respectively Dr. Chacin *adelante* and *detrás* meaning Doctor Chacin (before) and Doctor Chacin (after). The laboratory of the sanitary department is a great institution of research and investigation. Experts conduct the several departments of chemistry, analysis, bacteriology, epidemiology and pathology. The director is a man of winning personality, a fine executive and withal a man of science. I was his guest at a dinner in one of the clubs, and several times during my stay enjoyed his company and informal discussions of his work.

body of men.

orated with flower beds and arbors, making delightful spots that the convalescent can always enjoy.

The operating rooms and laboratories are entirely modern in every way and in them I saw a high class of work being done, the surgeons using the French technique.

Medical School Caracas

The medical school is not functioning at present and medical education is carried on by the old system of tutors and preceptors. The young aspirant, after having served his time under his several preceptors, is examined and asked to present his thesis. If all is satisfactory he is granted his license to practice medicine. The profession entertains the hope of soon re-establishing the school, and the faculty is nominally existent and ready for work.

Caracas

Caracas, from a sanitary standpoint, is very

ago is a relative of the Minister of External Relations, Dr. Itnago Chacin. To distinguish

Cuba

Surgeons of Havana — Committee on Credentials

The members of

José A. Preston, general surgeon, chairman
Rafael Menocal, general surgeon, secretary
Carlos E. Finlay, ophthalmologist.

Recommendations for Fellowship

I met with these gentlemen at a later date at the home of Dr. Preston to inform them more fully of the work engaged in by the American College of Surgeons and the privileges of Fellowship.

I found in Cuba a greater number of specialists than in the other countries. Havana, of course, is a larger city and the men can more easily limit themselves to their particular branch of work.

CLINICAL CONGRESS OF AMERICAN COLLEGE OF SURGEONS

TWELFTH ANNUAL SESSION BOSTON OCTOBER 23-27 1922

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PLANS FOR THE CLINICAL CONGRESS IN BOSTON

IN the following pages will be found a preliminary program for the evening meetings of the Boston session as arranged by the Executive Committee of the Clinical Congress.

The Congress formally opens on Monday evening with the presidential meeting in Symphony Hall. On this occasion the distinguished foreign guests will be presented, and the President-Elect, Dr. Harvey Cushing, will deliver his inaugural address. Professor Raffaele Bastianelli of Rome, Italy, will present the John B. Murphy Oration in Surgery taking for his subject: Surgery of the Joints.

Interesting programs have been prepared for the sessions on Tuesday and Thursday evenings in Jordan Hall, at which papers will be read and discussed by eminent surgeons especially selected as qualified to discuss the subjects under consideration.

On Wednesday evening the Fellows and their ladies will be guests of the Boston Surgical Society at a special meeting in Jordan Hall, the occasion being the presentation of the Henry Jacob Bigelow medal to Dr. William Williams Keen of Philadelphia.

At the tenth convocation of the American College of Surgeons to be held on Friday evening in Symphony Hall, fellowship in the College will be conferred upon a group of American and

Canadian surgeons, and honorary fellowships upon a number of distinguished foreign guests. Professor Raffaele Bastianelli will deliver the fellowship address.

The following distinguished Latin-American surgeons are expected to attend the Clinical Congress: Dr. José E. Castro, Dr. José A. Fresco and Dr. Rafael Menocal of Havana, Cuba; Dr. Gabriel M. Melia and Dr. Ulises Valdes of Mexico; Dr. José Arce of Buenos Aires, Argentina; Dr. Claudio J. Sanjines of La Paz, Bolivia; Dr. Olympio da Fonseca of Rio de Janeiro, Brazil; Dr. Gregorio Amunategui and Dr. Lucas Sierra of Santiago, Chile; Surgeon-General Alberto Admasola and Dr. Guillermo E. Maennich of Valparaiso, Chile; Dr. Pompilio Martinez of Bogotá, Colombia; Dr. Francisco Graña of Lima, Peru; Dr. Enrique Pouey of Montevideo, Uruguay; and Dr. Louis Razetti of Caracas, Venezuela.

THE CLINICAL PROGRAM

The plans for the Boston meeting will in a general way conform to those of previous sessions of the Congress. Clinical demonstrations at the hospitals and medical schools will fill the morning and afternoon hours of each of the four days of the Congress, Tuesday to Friday inclusive. The Committee on Arrangements is de-

Department of Health and Charities

The Department of Health and Charities has

product, and was evolved in the mind of Dr Carlos Finlay the father of Dr Carlos E. Finlay

CURAÇAO

While in Curaçao I visited St. Elizabeth's Hospital, which is conducted by Sisters of the order of St. Francis from Holland. There are forty three Sisters, six of whom are trained nurses. The hospital contains two hundred beds and resembles in administration the hospitals of the States.

The Green Cross Sanitarium of fifty-bed capacity is also well conducted.

Dr H. Boogart practices general surgery. Dr M. Goodhart does ear, nose and throat work, and Dr H. Ferguson is an ophthalmologist of great prominence in the countries near by. He is quite expert in cataract extraction and enjoys an enviable reputation for such

IN COLOMBIA

Everywhere on my trip the extension of the American College of Surgeons was enthusiastically received and a desire to co-operate in the uniting of American surgeons was manifested. It has often been said that an anti North American feeling exists in Latin America, and many

regrettable incidents have occurred that would foster such a feeling, if it existed. In most tendencies, South America has always had a pro-European feeling that is a sympathetic feeling for the South European countries, France, Spain and Italy which is quite natural. This should not be interpreted as anti North American. For years men of science from these countries have studied in Europe and have acquired a natural sentiment toward things European, and a bond of friendship exists with its people. It comes partly from the interchange and partly from a love for the motherland. Had we the same understanding of the South American, our association and friendly relations would increase from our proximity.

In their profession are serious and progressive and after all still have time for play makes us feel our littleness, our limitations. Whatever it may be, we certainly have missed a lot of the good things of life through the improper proportioning of our study hours. We usually think of the Latin American as a person of impulse. To

pardon and is revealed only in love and war. To know the South American is to appreciate a warm friend and to love him.

reached some weeks in advance of the meeting

HOTEL ACCOMMODATIONS

The Committee on Arrangements has appointed a Committee on Hotels, with Dr Stephen Rushmore as Chairman, to aid Fellows in securing hotel accommodations.

Individual Fellows are requested to make their applications for accommodations direct to the hotels named in the list recommended by the Committee as printed below. If difficulty is experienced in securing satisfactory accommodations the matter should be taken up with Dr Rushmore, 520 Commonwealth Avenue, Boston.

CLINIC TICKETS

Attendance at all clinics and demonstrations is controlled by means of special clinic tickets.

Boston Hotels with Rates

Adams House, 555 Washington St
American House, 50 Hanover St
Arlington, 8 Chandler St
Avery, 24 Avery St

any clinic is limited to the capacity of the room in which that clinic is to be given. Tickets are issued at headquarters each morning at 8 o'clock.

Each afternoon during the session a complete program of the following day's clinics will be posted on bulletin boards at headquarters. After the program has been so posted, reservations for tickets for the next day's clinics may be filed

REGISTRATION FEE

Plans for the Congress provide that no financial burden may be imposed upon the members of the profession in the city entertaining the Congress.

surgeon on registering in advance is issued a formal receipt for the registration fee, which receipt is to be exchanged for a general admission card upon his registration at headquarters in Boston. This card, which is non-transferable, must be presented to secure special clinic tickets and for admission to the evening meetings.

| SINGLE ROOM | | DOUBLE ROOM | |
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veloping a program of clinics and demonstrations that will completely represent the clinical activities of that great medical center. All departments

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Q

The medical units which will co-operate in providing the clinical program are as follows:

Harvard Medical School
Boston University Medical School
Tufts College Medical School
Beth Israel Hospital
Franklin Booth Hospital
Boston City Hospital
Boston Dispensary
Boston Lying-In Hospital
Fet & Pest Brigham Hospital
Cambridge Hospital
Carney Hospital
Children's Hospital

U. S. Naval Hospital
V. A. Medical Hospital

HOSPITAL CONFERENCE

The Committee of the American Medical Association

meeting last year insured a permanent place for

and current opinions relative to hospital service. Any topic of interest may be presented in the

In the afternoon Dr. M. T. MacEachern will conduct a round table discussion at which the vital hospital problems will be summarized by staff members, superintendents, and members of boards of trustees.

HEADQUARTERS

General headquarters for the Congress will be at the Copley Plaza Hotel which is centrally located in the Back Bay district. The large ballroom of the hotel, foyers adjacent thereto with other large rooms on the main floor have

train for Tuesday will be distributed during the afternoon and tickets for Tuesday clinics will be issued as visiting surgeons register.

REDUCED RAILWAY FARES

The railways of the United States and Canada with but few exceptions have authorized the sale

will be issued to all who register in advance, one certificate being sufficient for the individual surgeon and his family.

return limit of November 2.

LIMITED ATTENDANCE—ADVANCE REGISTRATION

Because of the popularity of these annual

registration in advance on the part of all who expect to attend and when the limit of attendance has been reached through such advance registration at the office of the College, no further applications will be accepted. This plan insures accommodations at the clinics for all who register.

International Abstract of Surgery

Supplementary to
Surgery, Gynecology and Obstetrics

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| LOUIS E. SCHMIDT Genito-Urinary Surgery | FRANK J. NOVAK, Jr. Surgery of the Ear |
| JOHN L. PORTER, Orthopedic Surgery | Nose and Throat |

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PROGRAM FOR EVENING MEETINGS

Presidential Meeting Monday October 23—Symphony Hall 8 P.M.

Address of Welcome: LUDWIG DAVIS, M.D. Boston, Chairman of Committee on Arrangements

Address of the retiring president JOHN B. DEAYES, M.D. Philadelphia

Introduction of foreign guests RAFFAELLE BASTIANELLI, M.D. F.R.C.S. (Hon.) Rome, FRANCIS SEYMOUR KIDD, M.Ch. F.R.C.S. London ANDREW FULLERTON, C.B. C.M.G. Belfast EDGAR KRY, M.D. Stockholm

Inaugural Address HARVEY CURRAN, M.D. Boston

The Doctor John B. Murphy Oration in Surgery—"Surgery of the Joints" RAFFAELLE BASTIANELLI, M.D. F.R.C.S. (Hon.) Rome.

Tuesday October 24—Jordan Hall, 8 P.M.

EDGAR KRY, M.D. Stockholm Treatment by Embolectomy of Circulatory Disturbances in the Extremities Due to Emboli

SYMPOSIUM: Genito-Urinary Surgery

HUGH H. YOUNG, M.D. Baltimore Prostatectomy—Preparatory Operative, and Post-Operative Methods.

FRANCIS SEYMOUR KIDD, M.Ch. F.R.C.S., London Simple Mesodermal Tumors of the Urinary Bladder with the Report of a Case Treated by Operation.

ANDREW FULLERTON, C.B. C.M.G. Belfast: A Note on Unilateral Distress

J. BENTLEY SQUIER, M.D. New York The Surgery of Vesical Neoplasms.

Discussion WILLIAM C. QUINCY, M.D. Boston ALEXANDER RANDALL, M.D. Philadelphia JOHN T. GERAGHTY, M.D. Baltimore JOHN H. CUTHINGHAM, M.D. Boston

Wednesday October 25—Jordan Hall 8.30 P.M.

SPECIAL MEETING OF THE BOSTON SURGICAL SOCIETY

Introductory Remarks ROBERT W. LOVETT, M.D. Boston, President

Presentation of Henry J. Bigelow Medal to WILLIAM WILLIAMS KEEN, M.D. Philadelphia

"Sixty Years Ago—1862 to 1922 : WILLIAM WILLIAMS KEEN, M.D. Philadelphia.

Thursday October 26—Jordan Hall, 8 P.M.

SYMPOSIUM Carcinoma of the Jaw, Tongue and Cheek and Lips

Discussion ROBERT B. GRYNQUH, M.D. Boston ALBERT J. OCHSNER, M.D. Chicago
P. BLAIR, M.D. St. Louis JOSEPH C. BLOODGOOD, M.D. Baltimore DOUGLAS A. QUACK, M.D. New York GEORGE P. MULLER, M.D. Philadelphia, H. R. GAYLORD, M.D. Buffalo
ALEXANDER E. GARROW, M.D. Montreal CHARLES C. SCHOENBERG, M.D. Boston

Friday October 27—Symphony Hall 8 P.M.

CONVOCATION OF THE AMERICAN COLLEGE OF SURGEONS

ABSTRACTS OF CURRENT LITERATURE

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INTERNATIONAL ABSTRACT OF SURGERY

SEPTEMBER, 1922

ABSTRACTS OF CURRENT LITERATURE GENERAL SURGERY—SURGICAL TECHNIQUE

ASEPTIC AND ANTISEPTIC SURGERY

Henrichsen, K.: The Importance of Continuous Sterilization of Instruments in Operations for Carcinoma as a Protection Against Local Recurrence (Ueber die Notwendigkeit fortwährender Instrumentensterilisation bei Carcinomoperationen zum Schutz vor örtlichen Reziden). *Zentralbl. f. Chir.* 9. xix, 34.

Following amputations of the breast for carcinoma

crossed in ninety-four cases and unchanged in six. Hemoglobin changes were observed in three instances in one there was an increase and in two a decrease.

the margins of the tumor the borders of the proliferating zones into the superficial network.

In order to prevent recurrences all tissues in the field of operation, and especially the tumor itself must be handled both before and during the operation so delicately that the growth will not be broken into fragments and sowed into the wound in the

operation the tumor cells are removed

ANÆSTHESIA

Day M. G.: Some Studies of the Blood Before and After Etherization by the Drop Method. *Am. J. Surg.* 9. xxvii, 1285. Supp. 53.

From a study of the effects of an

Day came to permit and the without any marked detrimental effect upon the blood. The studies with the dark-field microscope did not show any increase of free fat in the blood following the administration of ether if the operation

is all

The records of six patients operated upon under local anesthesia (0.5 per cent cocaine) show a fall of blood pressure in every instance. The hemoglobin was unchanged in four, increased (5 per cent)

under which both before and after operation

The importance of pre-operative study of patients was impressed upon the author by the case in which 0.05 of ether were given. The operation consisted of amputation of the cervix and repair of the perineum. It was completed in about one hour but profuse oozing of blood required another hour for its control. The patient recovered. In the

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Since the armistice the author has used intra-tracheal ether in seventeen cases of pituitary tumor, forty-nine cases of cerebellar tumor, and sixty-three cases of supratentorial tumor for one surgeon alone, and has employed it also in numerous other cases.

G. R. McVUARY, M.D.

Waters, R. M. Lessons from Anesthetic Accidents and Near Fatalities. *Am J Surg* 1913 xxxvi, Ames Supp. 57.

The anæsthetist's best insurance against casualties is the proper interpretation of a careful pre-operative physical examination and of observations made during anæsthesia. The essential points of inquiry before operation are: the time of the last meal and the nature of the food taken, the condition of the lungs, heart, nose, mouth and throat, the patient's mental attitude, the stability of his nervous system, and his general powers of resistance in relation to the extent of the operation to be performed. In all doubtful cases the cardiac reserve

liquid diet the day before. Flatulence occurred in 6 per cent of the cases. In the next 175 cases the enema was omitted, the dose of morphine reduced, and a more generous breakfast of tea and toast was followed by 1 oz. of syrup of glucose one hour before operation. Flatulence occurred in only 4.5 per cent. The same modification, however, caused an increase from 17.3 to 25.1 per cent in the post-operative vomiting. In the entire series, vomiting took place in 37.1 per cent of the cases of major operations and 22.7 per cent of the cases of minor operations. It persisted for several days after operation in only 7.3 per cent. In the others the

be

Smith, G. F. R. Some Observations on Post-Anæsthetic Complications. *Brit M J* 1913, 33.

In 571 cases operated upon under general anæsthesia there were four deaths due respectively to shock, heart failure, pneumonia, and

small quantity of chloroform when necessary, chest

In seeking the cause of the chest complications which occurred in spite of all precautions the

Laurenti, T. Postoperative Acetonuria (Contributo clinico all'acetonuria postoperatoria). *Policlinico* Rome, 1913, xxxi, sez. chir. 133.

The author gives a brief historical review of the occurrence of acetone in the urine including post-operative acetonuria. On the basis of 103 cases collected in 1907 Longo drew the following conclusions:

1. Postoperative acetonuria is an almost constant phenomenon but is temporary.

2. Causes of acetonuria are narcosis, trauma, and fasting.

3. The postoperative course is not influenced by the appearance of acetonuria.

venomous
anatomical

60 cases
the Royal

1. 100 per cent (4) ether anæsthesia 100

examination of the smear taken before operation almost complete absence of blood platelets was

times daily for two or three days before operation. The normal number of blood platelets is generally given as 350,000, and a number below 200,000 is considered to indicate a predisposition to hemorrhage.

Ben Morgan, M.D.

in the blood. Morgan states that the blood platelets are

In opening the discussion Fleming pointed out that ether alone can be used safely by the aver-

case may be. With the latter combination he has had excellent results in similar operations because it is less apt to engorge the throat and to cause

cular relaxation and the absence of shock to the nerve blocking, the nitrous oxide doing little beyond keeping the patient unconscious. In abdominal

plays a secondary part. These apparently support the view already expressed, that nitrous oxide is

any apparent provocation. He now uses them as

in active or recently healed tuberculosis. In the latter the rapid breathing may lead to a spread of the disease or to a fresh outbreak. Gas and oxygen no doubt are the best means of controlling and controlling shock. This was proved by experience in the casualty clearing stations during the war.

Ben Morgan, M.D.

Monnell L. Anesthesia for Intracranial Surgery
Proc Roy Soc Med Lond 1911, 24 Sect. Anest.
15

For intracranial operations the author has adopted the intratracheal route and ether as the anesthetic.

Intratracheal ether anesthesia is safe for the patient, allows the surgeon to work unimpeded by the anesthetic, and permits the anesthetist to make blood-pressure readings and other observations. It is applicable to all cases of cerebellar

with special or infiltration anesthesia

Boyle agreed with Barton in objecting to the term "gas and oxygen." He suggests the designation "gas-oxygen-ether or gas-oxygen CE," as the

portions as well as the mastoid process of the severe acute infection. Later the picture was ob-

regional infection and carries a guarded prognosis.

Invasion occurred by contiguity or by the blood stream. The condition was characterized early by inflammation of the vascular structures of the bone. The medullary spaces and the lining of the pneumatic cells were involved. The granulations were

particularities and some may be seen in

cerebellar abscess one extradural abscess in the middle fossa, four and streptococci leptomeningitis, twenty-one. Extradural extension produced

in other parts of the body by way of the blood stream included metastatic abscesses arthritis, optic neuritis, nephritis pleuritis, endocarditis

in case reviewed there were twenty four deaths. Twenty-two autopsies were performed. The causes of death were pneumococci metastatic abscesses, leptomeningitis, cerebellar abscess, cerebellar abscess, and sinus thrombosis.

The author's method of obtaining cultures from the middle ear was as follows:

The canal was cleaned of blood and exudate with salt solution alcohol, and dry sterile cotton

in the author's opinion an acute streptococci

Vlasto, M. and Owen, S. A.: A Case of Latent Intracranial Abscess Associated with Double Acute Mastoiditis. *Lancet* 9, 1911, 99

The authors present the case of a boy 8 years of age who at first developed all the symptoms of a

on culture showed the same organisms. Drainage of these abscesses was followed by the subsidence of the symptoms.

Twenty-five days after the mastoid operations the temperature and respiratory rate were normal but the pulse rate was 100-112. A week later there was diffuse frontal headache associated with vomiting not of the cerebral type. The temperature became subnormal and the pulse rate slow. There was a very marked absorption of all adipose tissue with wasting and hypotonicity of the limbs. Choked discs were then discovered for the first time. An exploratory operation through the mastoid incisions failed to disclose an abscess of the middle fossa or in the brain tissue of the sphenoidal lobes. Cultures of the subarachnoid fluid yielded Gram positive diplococci. Headache still persisted but was mild. Vomiting ceased and the eye symptoms disappeared.

About three weeks after the second operation there was headache localized in the right frontal region and associated with increased papilloedema

symptoms and the patient died forty-eight hours later.

The autopsy showed the meninges of the brain adherent to the decompression wounds. The meninges formed an abscess wall anterior to the right decompression wound. A pus pocket confined between the dura and the pia arachnoid covered the lateral aspect of the brain and bordered on the superior longitudinal sinus. Evacuation of the

cultures given. The convolutions of the brain were normal under the adherent meninges but in other areas were flattened or presented the appearance of tissue removal. S. J. HANSEN, M.D.

Kapertsky, S. J., and Schwartz, A. A.: A Case of Intracranial Cerebellar Abscess Complicated by Acute Labyrinthitis. A Case of Labyrinthitis Complicating Chronic Mastoiditis. *Laryngoscope* 922, 1901, 174

The case of intracranial cerebellar abscess complicated by acute labyrinthitis was that of a 5

2 Its duration usually varied from two to five days, rarely persisting six days, and in only one case continuing for seven days.

3 The acetabula did not exert any manifest influence upon the course of the postoperative

patients the condition persisted longer and was

SURGERY OF THE HEAD AND NECK

HEAD

McArthur G. A. D: Diffuse Cranial Osteomyelitis as a Sequela to Malar Acute Otitis Suppurativa. *Med J Australia*, 1929 1: 9

periods of quiescence which may last for months and then suddenly flares up again.

Osteomyelitis is a postoperative complication develops at with slight

that of act

develops

dead white and when they are incised, moderate pus is found. In the soft tissues an osteoma is found remote from the site of infection. The swellings are usually caused by discrete cranial abscesses separated by what appears to be healthy tissue.

Boyd-Sweeney, H. S. Osteomyelitis of the Two parietal Bone. *J Indiana M Ass* 1912, 27: 147

Upon the basis of 366 cases, in twenty-nine of

than the pericranium

Extension of the infection is usually upward though the vault and the entire base may become involved.

other organisms from the infected cancellous bone through the operative wound. Hence the author

months. Spontaneous osteomyelitis is usually associated with it. The chronic form is usually in onset. Abscess formation with fever is followed by

Dew, H. R.: Tumors of the Brain; Their Pathology and Treatment. An Analysis of Eighty Five Cases. *Med J Australia* 9 455

The author has analyzed the cases of brain tumor in adults which were treated during the

were equal in number and constituted 50 per cent of all tumors. The majority of non-ventricled tumors

tumors. Tumors just above or below the tentorium caused diagnostic errors. Generally the diagnosis of tumor was not made until gross pressure symptoms and signs had developed.

Because of the great variation in the mentality and temperament of the patients, the date of the

unnoticed until severe headache or vomiting or

mental. Only one subtentorial tumor was associated with well-developed mental symptoms.

Convulsions occurred in twelve cases and were the initial symptom in eight. Questionable cerebellar ataxia was noted in three cases of frontal tumor. Ocular muscle paralysis due to involvement of the sixth cranial nerve occurred in eighteen cases, and paralysis due to involvement of the third nerve in three. There was no constant relationship between the side of the paralyzed nerve and the site of the tumor. Optic neuritis was noted in forty cases and was mentioned as absent twice. Vision failed in more cases. The reflexes were remarkably variable and often misleading. Absence of the abdominal reflexes, when noted, gave the most reliable and constant indication. Nystagmus was present in sixteen cases and absent in three cases of cerebellar tumor. Frontal tumors appeared at all ages most frequently in middle life while cerebellar growths developed earlier. The greatest incidence of all tumors was between the ages of

patient with generalized tuberculosis. In Australia tuberculomata are comparatively rare in adults and found only occasionally in children. No cerebellopontine-angle tumor was seen at autopsy. There was one extra-cerebellar tumor a dural endothelioma, on the under surface of the tentorium, which caused both cerebellar and frontal signs. Multiple hydatid cysts were found in two young patients. Gummata were noted four times, and because of their resistance to mercury and iodine treatment and their non-recurrent nature, the author advised surgical removal. There were neoplasms secondary to cancer of the breast and lungs and melanoma of the skin. The ventricles were dilated in six instances.

following a two-stage operation. The site of the tumor

eral spasticity. In many cases the lesion was far advanced and operation was performed as a last resort. In fourteen cases in which operation was done for the removal of a supratentorial growth

whenever there are signs of increased intracranial pressure.

ALAN C. DUNDY, M.D.

Dandy, W. E.: The Treatment of Non-Encapsulated Brain Tumors by Extensive Resection of Contiguous Brain Tissue. *Bull Johns H Hosp* 912, 1921, 88

In the treatment of gliomata Dandy resects the tumor en masse with a surrounding zone of normal brain tissue. The entire right or left frontal lobe has been removed without any observable mental

year-old man who, while a soldier in France five years previously, suffered an attack of frontal headache, high fever and pain in the right ear followed by spontaneous rupture of the tympanic membrane. A profuse purulent, middle-ear dis-

charge ensued. The right labyrinth was com-

In two weeks

The case of labyrinthitis complicating chronic mastoiditis was that of a man, also 33 years old,

and the right hand and was unable to touch objects with his hands correctly. During the following year polyps were removed from the right ear fourteen times, but hearing became progressively

not purulent. Cerebral involvement was not expected.

choleum was made pos escaped from an intradural abscess. A small sinus extended from the mastoid into the middle ear which was filled with a cholesteroloma.

A radical mastoid operation was done and the wound left open. On the first day after the operation the patient suffered from nausea vomiting,

free from
The spinal
cord polyp
nonnuclear,

and no bacteria it reduced the inflammation. On the third day the patient was comfortable and showed no cerebral or cerebellar involvement. After the first week the temperature remained

headache and veered to the left in walking. The mastoid wound was healed. There was a slight purulent middle-ear discharge and a slight spontaneous

2. Concomitant motions disappeared (double athetosis)

3. The symptoms of rigidity and forced motion were diminished (Parkinson's disease)

4. The epileptic attacks became less frequent and the localization of the incitation of the attack varied (Koshernikow's epilepsy)

5. The patients were enabled to use the extremities whose centers had been excised (Koshernikow's epilepsy)

The surgical treatment made possible (1) the testing of the physiological results with regard, for example, to the incomplete crossing of the cortico-muscular tracts (2) interesting pathologico-physi-

cortex upon the temperature of the body

(Koshernikow)

Ott, W. O. Cranial Nerve Palsies Produced by Tumors in the Region of the Jugular Foramen. *Surg. Gynec. & Obst.* 9, 1911, 30.

The author reports three cases of unilateral paralysis of the larynx with involvement of the last four cranial nerves of the same side due to extra-cranial tumors in the retro-mandibular fossa and jugular foramen, two of which had their origin in the same case.

Jackson's syndrome. In 1891, Jackson described a group of cases presenting the syndrome of palato-laryngeal hemiplegia. In 1897, Schmidt described still another combination of paralysis associated with laryngeal hemiplegia. Veret recently called attention to a combination of unilateral paralysis of the three nerves passing through the posterior foramen. Called hemiplegia.

The diagnosis is difficult and it is not possible to differentiate extra-cranial lesions of the

thymus, hemiparesis, and hemistasis are present. Extra-cranial lesions in the region of the jugular foramen are accessible and may be removed.

E. L. Voss, M.D.

Ney, K. W.: Facial Paralysis and the Surgical Repair of the Facial Nerve. *Laryngoscope* 1911, XXXI, 337.

Tumors involving the facial nerve are usually located at some point in its course through the facial canal. Surgical lesions of the seventh nerve within the cranial cavity are principally pontile angle tumors. Lesions of the facial nerve within the temporal bone may be due to trauma or other

cavity is cured.

The nerve is involved in only a small percentage of middle-ear infections. Facial paralysis is fairly com-

mon. It is liable to compression by inflammation and congestive processes. Depending on the degree of compression, the nerve may be cured.

of the terminal branches of the nerve are very difficult to repair and usually require muscle and fascia transplantation. Most of the lesions are due to compression and even when the nerve is divided the ends are held in fairly close approximation so that the regeneration of fibers into the distal segment is favored. The determination of regeneration will depend on the time and the type of the reaction to electrical stimulation.

An early sign of regeneration is the return of tone, grip, and mass. In the absence of electrical and mechanical irritability. The persistence of faradic irritability is a favorable prognostic sign. Recovery may be expected within two or three months. When paralysis continues for three months the

is gained, and during the sixth month there should be evidence of returning voluntary power. When the

muscles accessory or hypoglossal nerves can be done but is not satisfactory. Experiments have shown that motor fibers of a divided nerve will regenerate down the trunk of another nerve but fail to assume the functional specialization of the different areas in the motor cortex. When the

or other after-effect. Excision of the whole right temporal or right occipital lobe has been followed by only a contra lateral homonymous hemianopia.

" " " " " "

meninges, deforming the brain.

Because of the associated bone defect these in-

removed depends upon the position, size and character of the tumor. There is very little operative risk to partial or even complete resection of lobes. The two largest resections were done when the patients were unconscious; complete recovery followed.

1

opening it.

Two boys 10 years old are well and working four years after the removal of a tumor with all of the vermis and about half of each lobe of the cerebellum. Resections of the cerebellum are more serious than those of the cerebrum, but in adults the mortality has been very low. Dandy is not prepared to state what parts and how much of the cerebellar lobes can be removed without causing symptoms.

" "

recurrence.

closed without drainage
cured!

Complete recovery in
Maximilian N. D.

In several cases the face center and occasionally the arm center of the pre-Rolandic area has been removed. In three cases Broca's area has been excised apparently completely and to a depth of 5 or 3 cm. Complete motor aphasia resulted, but the power of speech began to return in a week and became normal. In two cases the right occipital lobe was resected but not far enough to cause visual aphasia. It has never seemed justifiable to resect the left occipital lobe to cure a patient of tumor. In

Protogeroff, C. L.: The Importance of Brain Surgery in Diffuse Hyperkinesia (Die Bedeutung der Hirnchirurgie bei diffuse Hyperkinesie) *Zeitschrift für Neurologie und Psychiatrie* 1921

Of the Russian investigators on hyperkinesia Darkachewitch and Razumovsky occupied them-

localized before paralysis develops, they can be

up is
be-

" " " " " "

Cases

" " " " " "

" " " " " "

of the body was taken into consideration is actually to the other cortical symptoms the higher ten-

the treatment of syphilis if this is a factor and the treatment of leucoplakia, cracks, and fissures.

This article discusses surgical measures only

tongue primary lesions in the floor of the mouth

enough. On the basis of the treatment and prognosis the cases may be divided into three groups: primary lesions without evidence of metastasis; cases presenting small nodules in the submental or sub-

to the subaxillary group and may pass from one side to the other and from there to other more

even though no palpable glands were present. A preliminary application of radium should be given to destroy the cancer cells not reached by the knife. The author does not advocate the use of non-surgical measures alone.

If a case is referred by a surgeon, an intensive course of preoperative treatment is given. The

treatment or block dissection is necessary. If the case is referred by a surgeon, block dissection is done after the primary reaction has subsided and postoperative radiation is given.

Implantation of emanation tubes at time of operation in any unremovable cancerous areas is advised, but necessitates extreme care in postoperative radiation. The radiation does not make surgery more difficult if the operation is delayed until the reaction has subsided.

The author believes that if the proper technique is employed, cancer of the lip can be handled satisfactorily.

In the third group of cases, those with extensive metastases, neither surgery nor radiation can effect a cure.

MAURICE HOSWART, M.D.

Ivy R. H.: Practical Method of Fixation in Fractures of the Mandible. *Surg. Gynec. & Obst.* 93, 770-770

of
oc
the
other head bandage is as apt to give good functional results as the bandaging of a fractured long bone. In the majority of cases the fracture is complicated by infection entering through the broken mucous membrane of
wire or a metal
efficient has
scores the occlusal surface of the teeth, and the great drawback that it requires considerable time to make it

pneumatic forceps, a pair of short-nosed scissors, and a tenaculum or a Backhaus towel clamp. In preparing the wire to be attached to the teeth a 6-in. length is folded around the tenaculum or

the surgeon's assistant proceeds at

After the teeth to be wired are selected with

this process is repeated on the corresponding upper teeth. The ends of the wire around the lower teeth are then twisted together with the eyelet projecting below the twist. In this way the upper and lower eyelets are prevented by the horizontal strands from coming too close to each other when subjected to the strain of the connecting wire to be described. The ends of the wire are then

in case

op
the
the
the
the

upper radium

spinal accessory nerve is used, the tone and motion of the facial muscles are restored but voluntary movements are possible only when attempts are made to elevate the shoulder.

The use of the hypoglossal nerve is open to similar objections. The most that can be said as to the final results of nerve anastomosis is that the muscle tone is restored. With this restoration how ever emotionally irrelevant and often embarrassing uncoordinated facial movements develop in the formerly expressionless facial muscles.

The only hope of restoring bilaterally coordinated emotional expression after paralysis of the facial nerve lies in the restoration of the functional in-

I the correction of the lesion in the facial nerve compression can be prevented by paralyzing the vertical, or mastoid segment the bend

canal. In the third stage of the operation the nerve is thoroughly exposed by the removal of the canal wall which is continued through the tympanic portion. Gross lesions of the nerve will then be apparent. Compressive lesions are evident only when the nerve sheath is opened. With the aid of a

nerve trunk. If the lesion is due to compression it can be relieved by opening the nerve sheath. If

exposed canal undergoing the same as in the middle ear.

The facial canal may be divided into four segments the vertical, or mastoid segment the bend

After the correction of the lesion in the facial nerve compression can be prevented by paralyzing

(facial) muscles

two weeks
to the an-
king of the
V U KRAMER M.D.

PANCOAST H. K. The Modern Treatment of Cancer of the Lip. Surg. Gynec. & Obst. 9, 320-330.

For many years the radiologist was obliged to treat cases of cancer in the advanced stages as they were turned over to him by surgeons and other physicians. Then he was forced into a new field.

the vertical to the horizontal. The tympanic segment extends between the pyramidal segment and the genu its average length is about 8 mm.

nuded nerve trunks by the evulsion of the thyroid stumps or by hemorrhage.

Before admitting the transitory character of a postoperative paralysis of the recurrent nerve it is necessary to control each stage of the convalescence by a laryngological examination because there are a

number of paralyses due to section of the nerve which appear to become cured spontaneously but the recovery is simply a matter of adaptation through more pronounced displacement of the normal cord toward the median line

W. A. BRYMAN

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Hedblom, C. A.: Open Pneumothorax in Its Relation to the Extirpation of Tumors of the Body. *Chest Wall Arch Surg* 922 356

Resection of the entire chest wall with wide opening of the pleural cavity was practiced before the nature of pneumothorax or the dangers incident to it were known. In 1809 Parham concluded that the size of the opening and the duration of the pneumothorax were the most important factors responsible for the symptoms. Hedblom has col-

lected 100 cases in which the operation was performed with greater assurance, less disturbance to the patient, and greater comfort to the surgeon than an operation performed without differential pressure.

A study of the cases reviewed with regard to postoperative complications indicates that the increased occurrence of complications furnishes substantial support for the use of differential pressure anesthesia in resection of tumors of the chest wall. It has been demonstrated clinically and experimentally that pneumothorax renders a pleural cavity less resistant to infection. Empyema was the most potent cause of death in this group of cases, and it is reasonable to believe that the pres-

ence of the eighty-two cases were operated on under differential pressure anesthesia. The openings in the chest wall varied in size and in most of the cases the exact area could not be definitely determined.

Sixty-four patients were operated on without differential pressure. Pneumothorax was produced in forty-three cases, and in two of them was bilateral. In several cases in the *Life o Clinic* series it was clearly shown that the extent of the operation plays a large part in the production of shock entirely independent of the pneumothorax.

Complications developed in 11 per cent of cases operated on with differential pressure anesthesia.

MAIN FACTORS IN DETERMINING DURATION OF THE LUNG AT THE END OF THE OPERATION

Hedblom suggests that it might be possible to combine local anesthesia for the first part of the operation with differential pressure anesthesia to inflate the lung at the end of the operation before closure. A simple intrapharyngeal anesthesia induced by the use of a gas and oxygen apparatus would achieve this result.

RAULF B. BRYMAN, M.D.

TRACHEA AND LUNGS

Bingel, A.: Transverse Tracheotomy (Tracheotomia transversa). *Med Klin*, 1922, LVIII, 33

A comparison of transverse tracheotomy with

produced

It is obviously not only possible but also reasonably safe so far as the immediate danger to life is concerned to open the pleural cavity wide without differential pressure anesthesia. The experience of many operators has shown that in the majority of cases in which a large opening of the pleura was produced with collapse of the lung, symptoms were absent or slight. Furthermore it is also possible to convert a large opening into a small opening or to close the opening completely by drawing in the skin edges or covering the opening with a wet towel. Experience seems to show also that traction on the lung will promptly relieve alarming symptoms referable to inefficient respiration. From a technical standpoint an operation under differential pressure anesthesia can

therefore be recommended as a method of producing of observed cases chiefly by removing thirty-six hours.

THORP (2)

cut off short and bent in to keep them from irritating the lips.

The teeth selected on the opposite side of the mouth are treated in the same manner and, if desired, a third set of teeth in the anterior region

may not immediately follow the pulling on the wires, but will generally occur when the slack of the connecting wires is taken up after twenty-four hours.

Occasionally a fracture of the body of the bone

may have been given information as to the quantity in which they enter the circulation. Furthermore, the impossibility of identifying the substance obtained from the gland experimentally with the

taken from an animal with adenoma with lesions venous blood. Still others were fed with tissue from the struma of the same patient. The rats are then placed, with controls, under bell jars, and their reactions to different degrees of rarefied air were observed. For the tests, patients with common struma, with Graves' struma, and with cretin struma were used. The following results were obtained:

1. Feeding rats with goitrous substance always caused an increased sensitiveness to the lack of oxygen. There was a difference in the strength of the effects of the goitrous substances employed, substance from exophthalmic goiter giving the strongest reaction and that from the parenchymatous enlargement of cretins the weakest.

2. Serum from thyroid veins caused less strong effects than those caused by the feeding of goitrous substances.

3. Blood from the aorta veins was distinctly active in the cases of colloid goiter and parenchymatous

those in which there are no teeth. The bones and the rare case with great loss of bone substance and destruction of teeth in which cast metal upper and lower splints connected by removable lock pins should be used. D. H. TAYLOR, M. D.

WEEK

DeQuervain F. The Relationship Between the Histologic Structure and the Biological Activity of Goiter Tumors. *Surg. Gynec. & Obst.* 1913, 17: 52.

The author briefly reviews the work which has

Bérard ———— The Effects of the Recurrent

From the consideration of clinical observations which he reports Bérard concludes that the pathogenic elements of a transitory paralysis of the recurrent nerve after operation for goiter are, in the order of their frequency

pedicle

3. Cicatricial retraction of the tissues at the site of the anastomotic sutures in the vicinity of the recurrent nerve or the blocking of one or both de-

establishing this fact, shows that these substances are beneficial to the body

An esophagotomy showed the plate to be in the

The author believes that in cases of foreign body in the thoracic portion of the esophagus

in patient, a woman 62 years old, was brought to the clinic with a severe phlegmon of the neck. Her temperature was 39.3 degrees C and her pulse 120. A few days previously she had swallowed a fish bone. At immediate operation a large amount of gas-containing pus was removed. The perforation in the esophagus was not found. Tamponade was done and uneventful recovery followed.

None should be avoided as it is unnecessary and very painful. GIBSON (2)

SURGERY OF THE ABDOMEN

GASTRO-INTESTINAL TRACT

Armstrong, G. E.: Gastric Hemorrhage. *Surg Gynec & Obst* 192 XXXV 466

The author states that in the past twelve years he has seen ten or twelve cases of massive hemorrhage into the stomach for which there was no satisfactory explanation. The bleeding came on and

in the hemorrhages of a pint of bright red blood occurred in one day. There was no evi-

surface was wiped. The following day another hemorrhage proved fatal. The autopsy findings were entirely negative.

portion of the duodenum, which seems favorable for the duodenal

1. 2010

3. The sudden change in reaction from acidity in the stomach to alkalinity in the duodenum.

Most of these ulcers seem to be of hematogenous origin.

The object of surgical treatment is to remove the pathologic condition and then to restore the physiology of the stomach as far as possible. If the ulcer is in the body of the stomach, near the lesser curvature, a J-shaped resection is

as the ulcer is very difficult to reach the cauterization method of Balfour should be used if this is impossible a pyloroplasty alone may be beneficial.

1. FARR, M. D.

Hendley J. S. and Vaughan, W. T.: The Surgical Treatment of Gastric and Duodenal Ulcers with Special Reference to Pyloroplasty. *J Am Med Ass* 9 XXXV 37

Many ulcers of the duodenum, usually the more

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perforation. Old peptic ulcers which have become callous are not often cured by medical treatment but their symptoms may be anchored and the patient's general health may be improved.

The etiology of gastric and duodenal ulcers has not been fully explained. The

of the

well known as the duodenal gastric or duodenal

Herve: The Freezing of Pleural Adhesions by the High-Frequency Current in the Course of Pneumothorax Treatment (Libération par étouffage des adhérences pleurales au cours du traitement par le pneumothorax) *Presse méd.* Par 1932, xvi, 445

In cases of pleural adhesions developing in patients treated by artificial pneumothorax the author formerly attempted the removal of the adhesions by the use of the thermocautery introduced through the lumen of a trocar but the method was

the lib-
tation of pleural adhesions is greatly facilitated and much more certain. The operation can be done either by introducing the electrode through a simple trocar under the control of the radioscopic screen or by the use of a special endoscope devised by the author which is inserted in one of two puncture wounds made in the thoracic wall, the electrode passed through a trocar being inserted in the other

R. A. BARRON

Barron, M. Carcinoma of the Lung. A Study of Its Incidence, Pathology and Relative Importance with a Report of Thirteen Cases Studied (Necropsy). *J. Clin. Surg.* p. 21, 6

In
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four

the incidence for the later period is 9 per cent, about four times the average incidence reported

The condition appears to occur about three times as frequently in males as in females. The highest incidence seems to be in the sixth decade. The chief etiological factors are perhaps inflammatory conditions, and of these tuberculosis is the most important. Barron believes that the chronic inflammatory processes following the recent influenza epidemics may account for the striking increase in the number of cases.

Grossly the tumors may be classified as (1) nodular (2) diffuse or lobular and (3) infiltrating. They vary greatly in size. Occasionally they are so small that symptoms are caused only by the metastases. The right lung and especially the upper lobe, is the most common site. Histologically, lung cancers are of various types. The cylindrical-celled growths are the most common, and of these the adenocarcinomas are the most numerous.

The symptoms may be so variable as to cause great confusion in diagnosis. Cough is a frequent and early symptom, and pain is usually present. Dyspnea and cachexia are late symptoms. Fever

is not infrequent because of the inflammatory complications so often present. In many of a series of cases cited by Barron the first diagnosis was tuberculosis.

writers believe it very great

Regarding the treatment Barron writes of the tumor a location also direct in a few attempts. Roentgen

has thus far proved of little or no value. The treatment therefore resolves itself entirely into the treatment of symptoms.

RALPH B. BERTMAN, M.D.

PHARYNX AND OESOPHAGUS

Nesimoff, W. M. External Oesophagotomy for the Removal of Foreign Bodies (Oesophagotomie externe contre Fremdkörper). *Verh. d. Ges. Chir. u. Gyn. Petersburg*, p. 1

The author has collected 450 cases of external oesophagotomy from the literature and describes five cases of his own. The main interest of the operation lies in the indications and the post-operative treatment. The author's cases are as follows:

Case. The patient was a man 35 years old who suffered severe pain immediately

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was introduced into the stomach through the

unconsumable as it was very thin and in the X-ray plate was indicated by

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An esophagotomy showed the plate to be in the esophagus immediately above its cardiac constriction. It was removed with a forceps and a gastric

The author believes that in cases of foreign body in the thoracic portion of the esophagus esophagoscopy may sometimes be very dangerous because perforation of the esophagus with sub-

swallowed a fish bone. At immediate operation a large amount of gas-containing pus was removed. The perforation in the esophagus was not found. Tamponade was done and uneventful recovery followed.

tient can be fed by mouth or through the stomach tube in the wound. The protracted retention of a sound introduced either through the mouth or the nose should be avoided as it is unnecessary and very painful. GUNDEL (2)

SURGERY OF THE ABDOMEN

GASTRO-INTESTINAL TRACT

Arnetron, G. E.: Gastric Hemorrhage. *Surg. Gynec. & Obst.* 9, xxxiv, 466.

The author states that in the past twelve years he has seen ten or twelve cases of massive hemorrhage into the stomach for which there was no satisfactory explanation. The bleeding came on suddenly in an individual otherwise healthy without

dence of cirrhosis, aneurism, or leukemia. At operation the stomach and transverse colon were found filled with clotted blood. The mucosa appeared normal and there was no oozing even when the surface was wiped. The following day another hemorrhage proved fatal. The autopsy findings are entirely negative.

not understood.

H. W. FICK, M.D.

Hendley, J. S., and Vaughan, W. T.: The Surgical Treatment of Gastric and Duodenal Ulcers with Special Reference to Pyloroplasty. *J. Am. Med. Ass.* 9, lxxviii, 37.

Many ulcers of the duodenum, usually the more recent ones, may be cured by non-surgical measures chief of which is diet. Operation is not advised for an ulcer of a few weeks standing unless it is complicated by some condition such as hemorrhage or perforation. Old peptic ulcers which have become callous are not often cured by medical treatment but their symptoms may be ameliorated and the patient's general health may be improved.

The etiology of gastric and duodenal ulcers has not been

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portion of the duodenum, which seems favorable for the development of thrombi.

2. Pressure and friction in the region of the pylorus due to the fact that the pyloric end of the stomach is composed of strong and active muscles and the caliber of the stomach tapers off to the pylorus.

3. The sudden change in reaction from acidity in the stomach to alkalinity in the duodenum.

Most of these ulcers seem to be of hematogenous origin.

The object of surgical treatment is to remove the pathologic condition and then to restore the physiology of the stomach as far as possible. If the ulcer is in the body of the stomach, near the

beneficial

The same is of

ulcers have resulted in cicatricial contraction and marked stenosis the normal gastric or duodenal

1 When there is an extensive stenosis so that most of the normal tissue near the pylorus has been destroyed. In a narrow stenosis with no adhesions

pyloroplasty in order to break the ring of cicatricial tissue and bring in normal duodenal and gastric wall which will drain away the venous blood

and not drained.

structures of the stomach or duodenum as in a narrow stenosis. When the diseased area of the

Grégoire, R. The Technique of Duodenojejunostomy (Technique de la duodénojéjunostomie). *J. de ch.* 19 XII, 449

The usual indication for duodenojejunostomy is obstruction of the duodenum. In the great majority of cases the obstruction is situated in the third portion, i.e. below the ampulla of Vater. The anastomosis should then be made as close to the

duodenojejunostomy

flank or the lumbar space

The technique of latero-lateral duodenojejunostomy is exactly the same as that of any other latero-lateral anastomosis, but there are two points which merit special attention, viz. the danger of injuring the superior mesenteric vein, and the difficulty caused by the mobility of the peritoneum in front of the duodenum. In placing the sero-serous buried sutures, care should be taken not to insert the needle too deeply so as to penetrate the musculature of the duodenum.

When the operative angle is acute, latero-lateral anastomosis is almost impossible. This fact led Grégoire to try the Y-anastomosis on the cado-

avoids all danger of vicious circle

W. A. BERNARD

Hartner W. F. Acute Intussusception. *Beskr. II* 43 J. 9. chruv. 700

In review of the history of intussusception

order to overcome the muscular resistance of the pylorus

I. W. BACR, M.D.

WILL 1897

An intussusception may begin in any part of the bowel from the duodenum to the rectum, but in about 85 per cent of the cases the point of origin is in the region of the iliocecal valve.

The pathologic changes in acute intussusception are caused by compression of the vessels of the mesentery.

In the order of their development the symptoms are as follows: (1) attacks of pain associated with

gangrene results.

The cause of the toxemia has not been satisfactorily explained. The more arrest of the onward

Operation is the only treatment. Resection should be done only when there is gangrene. The cases in which acute intussusception develops are those of patients who are very young and not able to withstand extensive intra-abdominal manipulation.

H. A. McKim, M.D.

Wilke, A. M. An Unusual Case of Intestinal Obstruction. *Arch Surg* 19: 217, 1900.

This interesting case is reported by the author because it presented a condition which he had never seen previously and of which he was unable to find a report in the literature.

The history very obviously suggested a diagnosis of recurrent attacks of intestinal obstruction.

intestine contained in the sac. When this mass was fitted down into the pelvis it caused no symptoms, but when it was displaced upward angulation of the intestine and obstruction resulted. Histologic examination of a portion of the membrane showed it to be made up of fibrous tissue. The pathologist suggested that it was a remnant of a persistent cecal mesentery which was drawn over the gut when the litter was rotated.

ELIOT C. ROBERTSON, M.D.

Andrews, A. F. R. Acute Intestinal Obstruction. *N. York M. J.* 9: 137, 1911.

The hospital mortality of acute intestinal obstruction has not been decreased despite the great progress in medicine and surgery in the last twenty years. The operative mortality is comparatively low when operation is performed soon after the onset of the symptoms and increases rapidly as the operation is delayed. It ranges from 22 per cent

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ing without relief. It is aggravated by food and

other signs such as a palpable mass and a rapid pulse. Tympany, shock, collapse and Hippocratic faces are usually noted.

operation even an occasional unnecessary operation is justified. The author states that the medical and surgical textbooks which pay too little attention to the early

is essentially the same viz. occlusion of the lumen of the intestine with in some cases strangulation

O. S. FARRAR, M.D.

Woringer P: Two Cases of Congenital Megacolon (Deux cas de mégacolon congénital) *Arch. franc. belge de chir.* 92, xxv 502

In the first case reported, that of a child 3½ months old, there was marked distention of the abdomen associated with vomiting and extreme

b. Acute obstruction (usually volvulus) either primary or superimposed upon hypertrophy induces sudden dilatation and the desperate picture common to such obstructions.

c. Chronic obstruction causes gradual dilatation and compensatory hypertrophy the type described by Hirschsprung.

5. Kinking or valve-like action at the rectosigmoid junction is the usual cause of obstruction. When the rectum is involved also anal spasm is a probable factor.

6. The surgical treatment of megacolon aims at the removal of the crippled bowel and restoration of the intestinal continuity. K. L. Voss, M.D.

Blood and mucus were never present in the stools. The patient's general state of nutrition was good. Constant vomiting and diarrhea ensued and the child died from general intoxication. Autopsy revealed pronounced dilatation and hypertrophy of the colon and rectum. Loyal E. Davis, M.D.

Seneart L., and Simson, R.: Two Cases of Megacolon Cured by Colectomy (Deux cas de mégacolon guéris par colectomie) *Arch. franc. belge de chir.* 92, xx 493

The authors report two cases of megacolon in which they performed a colectomy. One patient

Fowler W. F., Davidson, S. C. and Mellon, R. R.: Congenital Megacolon in the Adult. *Surg. Gynec. & Obst.* 92, xxiii 60

The authors report a case in which operation disclosed an enormously dilated and hypertrophied ascending colon, sigmoid colon, and rectum. The excised bowel weighed 3,000 gm. and measured 47.5 cm. in circumference and 60 cm. in length. Its capacity was 2,850 c.c.

A review of the literature is presented and the condition is discussed from the standpoint of its etiology, pathology, symptoms, and treatment. There is scant clinical verification of the theory

operation, partial or total colectomy depending

since the dilatation and the hypertrophy encountered in the so-called idiopathic megacolon cannot be differentiated from that which follows organic obstruction.

Baile, J. L. and Swanbeck, C. E.: Gas Cysts of the Intestines. *J. Surg.* 9, lxxx 620

Swanbeck reports a case of gas cysts of the intestines and reviews the etiology, pathology and symptoms of this rare disease. The theories ad-

weight

The physical examination was negative except

tion of Delatour) produces a definite syndrome without dilatation or hypertrophy.

toward the costal border. Deep pressure upon it suggested a fecal impaction. No X-ray examination was made.

When the abdomen was opened the tumor was

It is dangerous to delay incision since septic pyæmia may result even if the danger of general peritonitis is slight.

such suppurations from its front through the

discrete and others confluent.

Operation consisted of the removal of the appendix, cecum, and ascending colon with the cecostomy and anastomosis of the ileum to the trans-

extended into all of the coats of the intestine, especially the mucosa and submucosa. Pressure on the cecum caused air bubbles to appear there. The serosa was intact and shiny and presented numerous air vesicles. The portal through which the gas entered the layers of the cecum and the ascending colon was undoubtedly an ulcer at the base of the appendix.

The treatment of gas cysts of the intestine consists in the removal of the cause if possible.

retropentoneal fat is usually oedematous. It is necessary to retract widely in order to expose the external peritoneal cul-de-sac formed by the transversalis fascia and the peritoneum which, in cases of abscess, drains pus when incised. It is usually easy to find the appendix within the abscess, and if not it should be sought and removed after removal of the posterior parietal peritoneum from the cecum. Leclerc removes the appendix to avoid

ILEOCECUM

Holmann, A. H. The Surgery of Cecal Tumors (Let Operation des Coecaltumors) *Arch f H Ch* 912, col., 4.

The disease most frequently involving the ileocecal portion of the intestine is tuberculosis and the next most frequent is carcinoma. Sarcoma

ILEOCECUM

Leclerc, P.: The Posterior Subiliac Incision in Certain Types of Appendicitis (L'incision postérieure sous iliaque dans certaines formes d'appendicite) *J d Chir* 9, xxx, 459.

The posterior forms of appendicitis are far from rare since 30 per cent of infant and adult appendices are retrocecal or lateral to the ascending colon. These cases are somewhat difficult to diagnose as there is very little peritoneal reaction, almost no vomiting and no severe abdominal pain. The symptoms are chills, fever and the so-called posterior pain in the ilio-lumbar region. The muscular spasm and cutaneous hyperæsthesia are often absent in front and to be sought for behind. Pain is with flexion and abduction of the thigh is an important sign but seldom present.

While lying on his right side the patient is examined for muscular stiffness between the iliac crest and the insertion of the oblique muscles. Cellular edema is an important sign but deep fluctuation is rare as the quantity of pus is usually small.

The treatment of choice is incision and drainage of the infected area with appendectomy if possible.

Tuberculosis usually appears in the second or third decade, while carcinoma occurs most frequently in the fourth decade. In the literature there are reports of cases in which both carcinoma and tuberculosis of the cecum were found together.

The diagnosis of cecal tumor is often difficult as the thickness of the abdominal wall renders it impossible to palpate even large growths especially when they are covered by inflated intestines. Clinically carcinoma will be noticed early as it generally develops in the form of a ring causing obstruction. In tuberculous, ileus is more rare as the caseous infiltration more readily disintegrates.

In the X-ray diagnosis a single exposure tells nothing as it shows only the amount of contents present at that moment. Fluoroscopic observa-

and behind the diseased parts. Portions of in-

usual procedure today is the one-stage colonic

advocate the removal of the entire ascending colon as it is much easier to effect the anastomosis with the more mobile transverse colon. (Gives 2)

abdomen

Examination revealed in the left flank a tumor

ated. Nixal includes among the embryonically disposed mesenteric cysts (1) cysts of intestinal origin—those springing from Meckel's diverticulum, from the omphalo-mesenteric duct, or from the embryonic intestinal wall (2) dermoid cysts and (3) cysts which have their origin in retroperitoneal tissue (germinal epithelium, ovary, wolffian bodies, and müllerian ducts). Dows's theory that in most cases cysts originate in the epithelium is incorrect as the newer pathologico-anatomic investigations show that they arise from the lymphatic system. Whether they are due to infarcts of the lymph glands, lymph stasis obliterative processes, chronic lymphangitis, or active proliferation in the sense of a lymphangiosarcoma is still undetermined.

tant objective symptoms are extreme mobility, absence of movement or only slight movement on respiration, and a clear percussion note between the symphysis and the tumor. Very frequently

The oldest classification of cysts is based on the basis of their contents. Even today we frequently speak of blood, chyle, lymph, serous, echinococcus, and dermoid cysts. Dows proposed the following classification: (1) embryonically dis-

It is extremely difficult to make a differential diagnosis between cystic peritoneal tumors and mesenteric cysts. In most of the cases, however, it is a question of a differential diagnosis between mesenteric cysts and ovarian or perovarian cysts. Ovarian cystomata frequently cause urinary and menstrual disturbances and their growth is in the opposite direction. The absence in peritoneum

cysts has dangerous

to the abdominal cavity is necessary. The following methods of treatment come into consideration: (1) puncture which should be done only under exceptional circumstances; (2) marsupialization; and (3) extirpation. Extirpation is undoubtedly the most ideal and, if the surgeon is able to avoid injuring the mesenteric vessels (intestinal gangrene), it is also the least dangerous procedure. Marsupialization, which is regarded by many as a safe procedure, has been followed by

lation of the large pocket may take an exceedingly long time and that there is considerable danger of a ventral hernia after healing. SAKSOGA (2)

Mandl, F.: Cancer of the Rectum. Views on Etiology, Symptomatology, and Treatment. Based on the Material of the Hochenegg Clinic (Ueber den Mastdarmkrebs. Ätiologische Betrachtungen, Symptomatologie, und Therapie an Hand der Material der Klinik Hochenegg). Deutsche Zeitschr. f. Chir. 9. Jhr. 15.

The Hochenegg Clinic reports through Mandl 779 cases of cancer of the rectum, 460 of which were operated on by the sacral route. No increase in the number of cases of cancer occurred during or following the war. Five hundred and twenty-seven of the patients were men and 51 were women (67.6 and 32.4 per cent respectively). In both sexes the greatest number of cases occurred in the fifth decade of life. The youngest patient was a girl of 15 years; the oldest a man of 85 years who died three years after a colostomy.

Reference is made to Virchow's theory that irritation may be a factor responsible for carcinoma of the large intestine. The fact that the ingesta remain in the large intestine for twelve hours as compared with three hours in the small intestine makes the colon susceptible to cancer through pathological changes in the mucosa, particularly in the flexum and the ampulla of the rectum. In none of the Hochenegg cases could it be shown that carcinoma had developed in a hemorrhoidal nodule. Rectal or intestinal polyps were present in almost 2 per cent of the cases. Prolapse of the

anus in 7, proctitis in 3, anal fistula in 3, and dysentery in 7. Direct trauma as a cause was doubtful. On the other hand, the influence of pregnancy on carcinoma of the rectum is emphasized and has been found to have a sclerotic basis. Thirteen new cases are added to those already published. Hereditary predisposition is admitted, as is also the cancer & dexta which develops in two persons not blood relations who live in close intimacy.

In the symptoms there is entire absence of regularity both in the appearance of the first symptoms and their order. The Strassman trilogy constipation, tenesmus, and bleeding is denied. Cases are classified into (1) those of fulminating course with symptoms of four weeks' duration; (2) those with a course of two to eighteen months

forward. The Hochenegg school has not been entirely satisfied with rectoscopy. Digital exploration gave a much more distinct picture in many instances. The exclusion of tumor for examination

operation or colostomy is indicated. Contra-indications are metastases in the internal organs or in the skeletal system, lymph-gland metastases along the spinal column, severe disease of a general character and cachexia. In the latter and in diabetes, each case must be treated on its own merits. There is no age limit. The fact that the carcinoma is situated high is not a contra-indication, but if it spreads in a transverse direction it soon becomes inoperable.

In eighteen of 779 cases operations for recurrence were performed. Of the remaining 761 cases 508 (66.7 per cent) were operated on radically. 184

time after colostomy the diagnosis of carcinoma appears questionable. In the Hochenegg operation the incision is begun at the left sacro-lilac synchondrosis and continued in a curve concave on the right, over the median line to the right lateral coccygeal ligament. Unlike the Kraske method, the ligaments are never divided, but merely notched, in order not to endanger the fixation of the pelvis. With regard to the amount of the os sacrum that should be removed each case is considered individually. Care is taken to protect the anterior sacral nerve roots. The coccyx is removed subperiosteally. As much of the sacrum as is necessary

to the circular suture his own method of leaving

sphincter

was not greatly lowered. As a preparatory measure when there is disturbance of cardiac function,

cases with a mortality of 55.0 per cent. In six cases

of the tumor. In by far the greater number of cases Douglas's pouch is opened, the flaps everted and the pouch then closed again.

Of 779 cases, a sacral radical operation was undertaken in 469. In eight cases it could not be

Röntgen and radium treatment were little used because of the lack of proper facilities. A warning is given against radiotherapy before operation.

PAGE (2).

Bower J. D. The Operating Cystoscope in the Application of Radium to Cancer of the Rectum Following Colostomy. *Surg. Gynec. & Obst.* 9: 270, 1919.

In three cases of cancer of the rectum Bower used to great advantage an operating cystoscope and a specially devised applicator in implanting radium in the proximal portion of the growth, an effective crossfire being obtained by inserting radium properly screened against the growth also through the anus. The technique used is as follows:

A lower left rectosigmoid colostomy is done under local or spinal anesthesia and the bowel opened on the third or fourth day by the use of the thermocautery.

tains a later report or to make a subsequent examination in only 161. In most of the cases subsequently examined there was found 4 to 6 cm. below the sacral axis an ampulla-like dilatation by means of which relative continence was obtained with the return of sensibility. Therefore plastic operations for the formation of an artificial sphincter were not undertaken. Hochenegg recommends the use of a well-fitting pad, but patients with fair continence often prefer to wear a simple rectal bander. In resection Hochenegg uses, in addition

through the anus

[CANCER 1: 1926, 34, 11]

Jentzer A. Functional Adaptation in the Artificial Anus (De l'adaptation fonctionnelle dans les anus contra natura). *Arch. franco-belges d' chir.* 1927, 505

In a case of rectal neoplasm in which the author formed an artificial anus macroscopic and microscopic examination at autopsy showed an enormous hypertrophy of the two muscular tunics of the intestine. Intestinal hypertrophy is not rare and is recognized by anatomic-pathologists as characteristic of certain conditions of the intestine but in this case there was no intestinal obstruction and the hypertrophy did not exceed the width of a true sphincter. Jentzer regarded it as a functional adaptation controlled by an anorectal center in the cord.

The author's findings have not only a theoretical

tion of the abdominal muscles might be developed

W. A. BARNES

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Laurentie A. Puerperal Cholecystitis (La cholecystite puerperale). *Rev. f. m. d. med. et chir.* 9, 171, 93

Puerperal cholecystitis is due to infection present before the pregnancy or developing in the course thereof. The organism responsible is usually the

flowing of its outflow

Acute puerperal cholecystitis may be catarrhal, purulent or gangrenous in type. The chronic form is at times hydropic and at others atrophic or hypertrophic.

Abscess of the liver, perforation of the gall-bladder, pancreatitis, cardiac lesions, pulmonary lesions, meningitis, appendicitis or pyelonephritis

dominal wall, the presence of a painful tumor in the region of the liver and general symptoms which occasionally are very grave. The chronic form is characterized by frequent paroxysms of pain, gastrointestinal symptoms and cachexia.

In certain cases a spontaneous cure results. Interruption of the pregnancy is rare. When there

is a particularly grave infection or a serious complication death may occur.

Medical treatment is the same as that of cholecystitis in the non-pregnant state. The character of the surgical treatment depends upon the stage of the pregnancy. Cholecystectomy is the operation of choice.

LOYAL E. DAVIS, M.D.

Don C. " " " " " "

933 171, 377

A woman aged 24 was brought to the hospital with intense pain and a tumefaction the size of a hen's egg to the right of the umbilicus. At operation the gall bladder was found enormously distended and adherent to the omentum and liver. The cystic duct contained a calculus. A cholecystectomy was done. The gall bladder contained a whitish fluid and 220 calculi. At the level of the fundus the mucosa was hyperemic and showed vascular dilatation.

There are two well-defined types of hydrops of the gall bladder due to obliteration of the cystic duct: the transudative or serous type and the secretory or mucous type. The first is characterized by a bladder with sclerous lesions and a fluid analogous to a transudate; the second by inflammatory lesions of the mucosa of the bladder and a mucous fluid.

In the author's opinion the secretory or mucous type corresponds to recent obstruction of the cystic duct and inflammation of the mucosa of the gall bladder, while the serous type is due to old lesions. The clinical history of cases reported as well as the nature of the lesions favors this hypothesis. The absence of bile in cases of gall-bladder hydrops is due to the reabsorption of the pigment and the salts by the gall bladder mucosa or to the precipitation of its elements in the form of calculi. These two types appear to be the extremes of the pathologic process and it is certain that between them there are numerous intermediate forms.

Histologic examination of the gall bladder wall in the case reported here

the mucosa involved by very extensive inflammatory lesions

W. A. BARNES

Hots, G. Surgery of the Bile Ducts (Chirurgie der Gallenwege). Scherer and W. Kunkel, 9, 11

Hots reports on 2,856 operations for cholecystitis and cholelithiasis and 93 for other conditions, chiefly tumors, which were performed by forty-two Swiss surgeons during the last ten years. In about 50 per cent of the cases of inflammatory cholelithiasis

as no infecting agent could be found even when the clinical picture was that of a severe infection with high fever and slight icterus and the gall-bladder

so per cent of persons with gall-stones require operation may be true in practice among the rich but not in everyday surgery. The high operative mortality and the relapses after operation are raised as objections to early surgical treatment. The causes of an unsuccessful result following operation are:

1. Complications caused by the cholelithiasis itself and its inflammatory extension.

2. Disturbances of other organs (lungs, heart, peripheral vessels) which must be considered as essentially the result of degeneration in a worn-out organism. Inflammatory and degenerative

primary inflammation of the pancreas may also lead to these conditions. The frequent appearance of fatty stools at the time of the attacks of pain points to pancreatitis, a complication to which little attention has been given heretofore. After

majority of cases it is best, for security to insert

majority of cases it is best, for security to insert

14.35 per cent. In order to obtain better results, patients with gall-stones must be operated on

possible—cholecystotomy.

The Baskie statistics show that when cholecystotomy and cholecystectomy are performed during

risks quickly

radically removing the stone. 3. Cholecystectomy carried out during the attack or in the interval between attacks. With regard to cholecystectomy the author states that primary

not necessary. Instead of

MISCELLANEOUS

Winslow N: Penetrating Abdominal Wounds.
Surg Gynec & Obs 93 xiv 617

In reporting thirty-one cases of penetrating wounds of the abdomen Winslow emphasizes the importance of a thorough abdominal exploration when there is doubt as to whether the peritoneal cavity has been entered or not. In all bullet wounds, however remote the wound of entrance, the abdominal viscera should be inspected if abdominal symptoms develop. If the intra-abdominal struc-

On the thirty-one patients whose cases are reported, sixteen recovered and fifteen died. Twenty-five were males, and six were females. Twenty-three had gunshot wounds, and eight had stab wounds. Of the former thirteen died and ten recovered, and of the latter two died and six recovered.

H A McKnight, M D

Keenan, C. D. Traumatic Diaphragmatic Hernia.
Ann Surg 1921, lxxv 63

pain in the epigastrium, nausea, and occasional vomiting, hiccough, shortness of breath, pain in the left lower chest during respiration, and shock. Physical examination showed marked rigidity in the left upper quadrant and marked immobility

frequently. The best results are obtained by early diagnosis and immediate operation. The method of approach may be through the chest or through the abdomen. In the great majority of cases the use of the thoracic route is much easier, but Keenan advises an incision on the antero-lateral surface extending partly into the thoracic cavity and partly into the abdomen as this makes exclusion of a rib unnecessary retraction alone being sufficient.

O S Proctor, M D

La ————— Hernia
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In the case reported laparotomy showed the left

the advisability of resecting the strangulated loop arises as in other strangulated hernia. In the case reported resection might have saved the patient's life but was not done because the color of the loop did not

began to suffer from attacks of severe pain in the epigastrium. These attacks became more severe, and in 1909 were associated with vomiting which caused relief. Physical examination revealed the

H. GRIMMAN

Dupont, R. An Inflammatory Tumor of the Abdomen (U cas de tumeur inflammatoire de l'abdomen). *J d'Anat* 9 2, xix, 459

Dupont reports the case of a man, 50 years of age, who at the age of 20 received a severe injury of the abdominal wall. When the patient con-

the diaphragm closed with as much overlapping as possible.

The second case reported was that of a man who had been struck on the upper part of his abdomen by a dehorned bull. He immediately suffered severe

about the umbilicus. Twenty four hours later

not appealed to many surgeons. Splenectomy has been recommended by W. J. Mayo who has obtained good results with it, especially in cases in which the spleen was large.

Many papers have been written on epiploectomy during the past twenty years. The results reported are encouraging in many cases but in others are discouraging.

turned to lose weight. An incision was then made

abscess at the lower pole of the mass was opened

apparently of value in the former type but valueless in the latter.

In the surgically treated cases elaborate tech-

tory narcotic.

One patient died two months after operation, apparently from toxemia.

One patient died about three months(?) after the operation at another hospital. Cause of death unknown.

One patient was relieved of all symptoms for

and the removal of any areas of infection giving rise to a fibrous reaction. H. I. Dwyer, M.D.

Gibson, J. H. and Flick, J. B. The Present Status of Epiploectomy. *Ann. Surg.* 922, 1911, 449.

symptoms

Alfred K. Howe, M.D.

Tédénat. Dermoid Cysts of the Mesentery (Kystes dermoïdes du mésentère). *Bull. et mem. Soc. de chir. de Par.* 19, 1912, 403.

— In 012

The author has operated upon three cases of enormous muco-dermoid retroperitoneal cysts which pushed the intestinal masses in front of them.

Extirpation is the operation of choice. Paskovskii cites thirteen collected cases so operated upon in which recovery resulted in eleven. In one case it was necessary to resect a part of the small intestine. Such a sacrifice must be made when a branch of the

cecum, ascending colon or hepatic flexure. It may be thin and loose or thick and short and located so as to cause distortion and compression of the gut. Compression may be caused by only certain areas in the membrane the rest of it being innocuous. Usually it can be slipped freely over the true
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The great omentum may have an anomalous

did in one of his cases, the operative procedure is simple when the cyst is pedunculated. In one of the author's cases the cyst had a long pedicle traversing the right fold of the mesentery and fixed deeply toward the spine. The intraperitoneal part of the pedicle was 14 cm. long, and the intramesenteric part directed toward the spine 3 cm. long. Most of this cylindrical pedicle, 15 mm. in diameter was tubulated. Excision of as much of it as possible was followed by anal and deep cauterization of the stump to destroy the epithelium and prevent recurrence. Total excision would not have been without danger to the vessels and other deep organs.

W. A. BRADY

Taylor A. B. Anomalous Abdominal Membranes
J. Am. Surg. 9, 1904, 3

This is a report based on the first fifty of a series of cases operated upon since 1914. Complete summaries of the cases are appended. The membranes found are divided into three groups: (1) hepatoduodenal and hepatoduodenocolic; (2) duodenojejunal; and (3) Jackson's or pericolic membrane.

usually continues downward from the duodenum and pylorus to the beginning of the transverse colon. It consists of two layers, and is thin and transparent. These membranes have
variation in
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dilated as
result of the continuous partial ob-

Jackson membrane or pericolic membrane is a membranous formation running from the outer

may be merely narrow band at some point on the

plain the failure of simple appendectomy to cure them.

There are two views as to the origin of these membranes: (1) they have no connection

balance of the fundamental factor involved, the membranes though congenital, may cause little or no disturbance until late in life. These factors are the resistance and distortion caused by the membranes and the muscular and nervous energy of the digestive tube. As long as the second factor is sufficient to overcome the first there will be few or no symptoms. If the resistance is great and the second factor remains energetic, pain will be a predominant symptom. As soon as the energy of the digestive tube is not sufficient to overcome the resistance the clinical picture is dominated by dilatation, stasis, and distension in the right side of the abdomen, constipation, and the general symptoms usually grouped under the term "auto-intoxication."

The physical examination may show the patient to be in good color or pasty and sallow. There is frequently local tenderness over the most involved area. The one factor most necessary for a correct diagnosis is a good barium series of the gastrointestinal tract correctly interpreted. Here one may

angulation at the junction of the first and second portions of the duodenum. There may be some deformity of the duodenal cap. In a case of du-

odenoduodenostomy is done a generous anastomosis being made.

The patient's position is changed frequently beginning immediately after the operation, and massage is begun as soon as possible and continued for from four to six weeks.

The preceding 3 cases have been reported by Dr. J. S. Fawcett, M.D.

of an interval for a long period as under such care many of them may be relieved and restored to usefulness. When the symptoms tend to become more continuous and severe in spite of good medical treatment, surgery is indicated.

satisfactory results were obtained in 84 per cent of the cases, and a complete cure in 33 per cent.

O. S. Fawcett, M.D.

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Haas, S. L.: Spontaneous Healing Inherent in Transplanted Bone. *J Bone & Joint Surg* 1912 24: 14-200

the bone, especially the epiphysis and (2) injury of the bone (fracture with or without injury of the epiphyseal cartilage).

As pointed out by Haas, the greater the injury the greater the healing.

healing of a transplanted phalanx the latter was buried in the paraspinal muscles. In seventy-two days the excised transplant was shown macroscopically and microscopically to be united by a bridge of new bone.

Haas believes that in the osteoblastic cells of a live bone transplant placed in a muscle and removed from all osseous contact there is a sufficient store of energy to form a union between the two fragments of a fracture produced in such a transplant, and that because of this very active independent, regenerative and reparative property innate in live bone transplants it is advisable to utilize living bone in transplantation whenever possible.

David T. Haas, M.D.

Speed, K.: Growth Problems Following Osteomyelitis of Adolescent Long Bones. *Surg Gynec. & Obst.* 1912 24: 400-406

Factors influencing the growth of long bones are (1) loss of blood supply, (2) disturbance of the endocrine system (3) inflammation or disease of

growing cartilage cells at epiphysis and bone trabeculae grow across the epiphysis.

epiphysis of greatest growth should be left unoperated.

The treatment is prophylactic and active. For the prophylactic treatment the following rules are given:

1. Early operation should be done on shaft osteomyelitis of adolescent bones before the epiphyseal areas become involved or their vessels thrombosed and obliterated.

2. Extreme conservatism is necessary in draining acute suppurative epiphysitis of adolescent long bones.

a. Cut open the periosteum by one longitudinal incision, do not reflect it any more than necessary.

b. Never use a sharp curette in the epiphysal

thirty cases, and Roth in 1930 found forty. Merton reports one original case and tabulates sixty-two from the literature which he groups as follows:

Group 1. Without giant-cell sarcoma.

A. With multiple cysts, fibrosis and malacia confined to a few bones (twenty-two cases).

B 1. With multiple cysts, fibrosis, and predominantly general malacia (eight cases).

B 2. With multiple cysts, fibrosis, general malacia, and hyperostosis (seven cases).

Group 2. With giant-cell sarcoma.

A. With cysts, fibrosis and tumors, but no

tous (five cases).

The cases of Group 1 (A), which are the most numerous, are usually those of persons under 30 years of age and it seems evident that in many instances the first symptoms appeared before the tenth year. In one case cysts were found at the age of

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Bowing of the long bones often occurs. Such deformities are amenable to surgical correction, the bone reacting in about the same way as normal bone. Microscopic examinations show fibrosis of the marrow, numerous cysts and an occasional giant cell.

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The cases of Subdivision B 2 are the same as those of Subdivision B 1 with the addition of hyperostosis which apparently is caused by bone deposits laid down simultaneously with the calcium withdrawal. The condition somewhat resembles Paget's disease.

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breast scoliosis lordosis and deformity of the pelvis occur and the patient may acquire an ape-like appearance.

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in readily. The prognosis is good.

waiting for growth to begin.

3. Protect the skin overgrowing the ends of the normal companion bone so that pressure sores and infection may not develop.

The rules for active treatment are:

1. Remember the law of nutrient arteries in relation to growing long bones.

2. Unless a bowing deformity in the leg or forearm tends to manifest itself rapidly so cause great loss of function, or to threaten skin necrosis, splint correction of the extremity should be continued for at least one year.

3. If both the clinical and the X-ray examinations during the course of the year show that the growth of the bone is arrested, a shaft resection of the companion bone remote from the epiphysis

Morton, J. J.: The Generalized Type of Osteitis Fibrosa Cystica. Von Recklinghausen Disease. Arch Surg 9 334

a tremendously thickened cortical bone, smooth curved deformities, and a mottled, cloudy marrow space

and tumors

In his earliest description von Recklinghausen regarded generalized osteitis fibrosa cystica as a

marrow made up of finely granular, loosely

Examination showed marked outward bowing of

vascularized rarely and seldom and cause the formation of cysts with smooth walls but without

them myeloplasm, but in Mallory's opinion they are foreign-body giant cells. The latter view is supported by Harnie who has produced a medullary giant cell sarcoma experimentally by embedding a piece of sterile gauze in the bone marrow. Labrisch

The etiology of the disease is unknown. Cultures have never been successfully obtained from the

examined in

in four weeks. A second osteotomy was done in the lower third eight months later and good alignment was obtained. WILLIAM A. CLARK, M.D.

Case P. The Nature and Pathogenesis of Paget's Osteitis Deformans (Zur Frage des Wesens und der Pathogenese der Osteitis deformans Paget). *Beitr. z. H. Chir.* 5: 1933

of the case in the literature

normal fatty bone marrow into fibrous marrow substance, and abundant periosteal and myelogenous new bone formation to replace the tissue destroyed.

diagnoses have been made as yet, and it is only recently that the subject has attracted much attention. The cases examined are not sufficient in

In no case has urinalysis shown the presence of

Strong warning is to be given against surgical interference. Phosphorus and cod liver oil, potassium iodide, and calcium lactate given internally have been partially successful. X-ray treatment, either alone or in conjunction with the remedies named, has also brought about improvement. The same can be said of preparations of the thyroid, thymus and other glands.

In his own cases the author obtained improve-

changes in the hyperplastic tissue, is due to an increase of the thyroglobulin of the thyroid gland.

Boer (2)

Ewing, J.: A Review and Classification of Bone Sarcomas. *Arch Surg* 1921, 4, 485

The classification proposed by Ewing is offered as a contribution to a much-needed uniform nomenclature of bone tumors. Most tumors are not

usually determine the course of the tumor

Classification of Bone Tumors

Osteoma Spongy ivory

Chondroma Pure chondroma chondromyxoma myxoma capsular periosteal central

Angioma Cavernous

Endothelioma Angio-endothelioma diffuse solitary multiple

Benign central giant-cell tumor and its variants bone cyst, giant-cell tumor, xanthosarcoma, myxosarcoma (benign)

Osteogenic sarcoma Periosteal, extraperiosteal, solid medullary and subperiosteal telangiectatic, sclerosing

Myeloma Plasma cell, lymphocytic, myelocytic erythroblastic

Only the cellular forms in this table are discussed in this article

ENDOTHELIOMA

Endothelioma of bone has usually been called round-cell sarcoma or myeloma, but sufficient is now known to

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neuropathic disturbance than a dysfunction of a number of glands that the different hormones act upon the bone marrow to excite inflammation and thereby cause extensive hyperplastic proliferation with hemorrhage and consequent degenerative transformations. Trauma and other forms of injurious stimulation take second place as causative factors. Hereditary predisposition to the condition is not to be denied.

is not infrequently of first consequence in the prognosis. The prognosis depends also on the location and extent of the disease process and on the age of the patient. The more advanced the age of the person affected, the more unfavorable the prognosis.

The treatment should be entirely symptomatic and directed to building up the general health

The multiple form may involve every bone in the body. It is a disease of adults with a tendency to form metastases in the lungs and lymph nodes. Nearly all cases have been fatal. The roentgenogram shows multiple central tumors with diffuse bone absorption. The growths differ from myeloma in that they are not so numerous and do not sharply perforate the bone. The crista are of an endothelial

cornea infected. They may be cured by curettage, by the roentgen ray or radium, and some of them disappear spontaneously.

Xanthosarcoma is classed as a variant of the giant-cell tumor because of its central location, clinical history, general structure, and course of

shows clean-cut destruction of bone. The tumor

structure from the myxomatous areas of osteogenic

GIANT-CELL TUMORS OF CARTILAGINOUS ORIGIN

several cases are known to have become cured

GIANT-CELL TUMOR AND ITS VARIANTS

There have been 131 cases of these tumors

osteogenic sarcoma. It is regarded as hazardous to depend upon a pathological diagnosis based on a small portion of a tumor removed for examination.

OSTEOCLASTIC SARCOMA

tumors arise from the joint capsule and are frequently encapsulated, growing to enormous size and pushing the soft parts before them. The texture

varies some may be soft, cellular and crumbly while others may contain cartilage which lies in strands and provides a firm framework. Microscopically they show spindle cells with hyperchromatic nuclei. Metastases are the rule although it would appear that some of the encapsulated forms could be easily excised. Hyperplastic callus and productive periostitis are often mistaken for sarcoma. To avoid this error the microscopist must base his diagnosis of malignancy on unmistakably neoplastic characters and must bear in mind that osteogenic tumors rarely develop within three weeks after an injury.

2. Solid subperiosteal and medullary sarcoma. This is the most common form of osteogenic sarcoma. It involves the marrow shaft and subperiosteal tissue. It destroys the shaft and may cross the epiphyseal line. The periosteum for a time acts as a capsule but eventually yields when the tumor spreads into the soft tissues. The growth is solid and usually contains considerable stroma of osteoid character but true bone formation is not prominent. Hemorrhage and necrosis occur in tumors of rapid course. Spindle, round, polyhedral, and mononuclear giant cells on a stroma of cartilaginous and osteoid tissue may make up the bulk of the tumor. The roentgenogram shows a fusiform subperiosteal growth without a bony capsule and an opaque medullary region. The cortex is obscured or destroyed.

3. Telangiectatic sarcoma. This tumor destroys the shaft and grows in all directions, breaking through the periosteum. In some cases it is made up chiefly of blood spaces on a stroma of malignant tumor tissue. It is the true malignant bone an-

the shaft into a solid bony growth of ivory-like density. The periosteum is usually intact, but if broken, the part of the tumor that grows through is more cellular. The growth consists of hyaline osteoid tissue or dense bone. Although the disease is slow in progress, it is usually fatal and metastases occur early.

MYELOMA

See also—

Plasma, perforating tumor causing general cachexia

ules. The erythroblastoma contains cells rich in hemoglobin and is a striking brownish red. The largest form of this type occurs in the ribs.

All the myelomata cause more or less marked cachexia and anemia and Bence Jones proteinuria. Rapid destruction of bone spontaneous fractures and collapse of joints and vertebrae occur and there is no bone production. The tumors recede rapidly under roentgen-ray and radium treatment but the ultimate prognosis is unfavorable because of extensions and metastases.

PROGNOSIS AND TREATMENT OF BONE TUMORS

The prognosis and treatment of bone tumors should be revised in the light of our present knowledge regarding roentgen-ray and radium treatment and the nature of the growths. The suspicion of

carcinomatous growths usually to the roentgen ray and radium. Osteogenic sarcoma and chondrosarcoma are not materially affected by radium. The more experienced the pathologist the less prognostic importance he attaches to the micro-

should never be inserted into a curettage cavity as the radiation makes the tissue more susceptible to infection.

See also—

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See also—

4. Solid cellular central and subperiosteal sarcoma. Some surgical cures of early cases.

5. Very vascular cellular telangiectatic sarcoma some surgical cures of early cases

After seven years trial of radiation in the treatment of osteogenic sarcoma the following

show
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ous

3 The growth of the cells may be retarded so that they produce calcific material dense hyaline stroma or bone

4 Cellular tumors without much stroma may disappear

5 Tumors with much intercellular material cannot be made to disappear but

cell tumor the wound closed

W. W. Carruthers, M.D.

Smith, M. K. Premature Ossification After Separation of the Lower Epiphysis. *Am Surg* 9:2, 1937 50

In the case reported by the author the lower end of the left radial epiphysis and a thin shell of bone from the posterior surface of the diaphysis were separated and the styloid process of the ulna was fractured in an accident. The displacement was

head of the ulna was prominent. The left radius was 34 in shorter than the right

in such an injury is rare. The prognosis should always be guarded

R. F. Ream, M.D.

FRACTURES AND DISLOCATIONS

Codman, E. A. Pathologic Fractures. *Surg Gynec & Obst* 191 1032 61

In this article Codman gives a résumé of the subject as found in the current literature. He discusses the literature etiology pathology differential diagnosis, prognosis, treatment prophylaxis, theory and research. Reference is made to Bloodgood's dictum that fracture as the common

very human activity is mentioned. A pathologic fracture implies a trivial cause acting on abnormal bone

Because of the very human activity is mentioned. A pathologic fracture implies a trivial cause acting on abnormal bone. Because of the very human activity is mentioned. A pathologic fracture implies a trivial cause acting on abnormal bone.

The treatment depends upon the

von der Ilster, F. The Treatment of Fracture of the Patella (*Die Behandlung der Kniegelenksfraktur*). *Archiv f. Klin. u. Exp. Chir.* 9:2, 1937 74

According to experience in a great number of cases of fracture of the

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ligaments fragments one another are obtained

After the operation the leg is kept in a splint for fourteen days. Puncture and active motion then begin. Patient is free to move

movement of the patella, and massage of the quadriceps muscle is given.

In open fractures of the patella it must be left to the judgment of the surgeon whether a primary suture should be done. In secondary suture great

lying fat. In spite of this exposure the fat if pro-

perfect healing, were never as good as in those who were unnaired. Hence there should be long continued after-treatment and observation of injured patients and later a reduction in the high pension to which they were at first entitled.

LACER (7)

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Morrison, R.: The "Bipp" Method of Treatment of Bone Cavities and Bone Grafts. *Surg. Clin. N. A.* 922, 1917, 642.

In discussing his use of bipp today the author recalls his early method of treating infected war wounds and the difficulty experienced by surgeons in developing a technique which would insure the success the method seemed to promise.

After a proper technique was developed the results were uniformly successful. The method developed by Morrison is applicable to the closure of infected wounds without drainage and to bone

cavities of the skeleton. The covering the cavity to see every part of it. A skilled assistant should take out every particle of bone as it is separated, otherwise healing of the wound may be delayed until it is taken out or extruded. When possible, the operation should be done with a tourniquet to allow of satisfactory inspection and to prevent the serious loss of blood which may follow one hour or more of operating. If there is any doubt felt as to seeing the whole cavity aided by a ball's eye light, I pack it with bipped gauze close the incision by interrupted suture over this, and at the end of two weeks dress the wound taking out the sutures, re-open to remove the gauze fill the cavity with fat grafts, and resuture if there is no sign of wound infection.

As the cases show it is possible to obtain healing of these septic cavities by first intention, and though some of them may take a long time, failure as I have proved, is an infrequent event. In my experience the greatest obstacle to prompt recovery is the difficulty of securing a healthy skin covering for these fat filled cavities. Skin flaps are apt to slough, and skin edges united immediately over the packing are apt to separate and expose the under

should always be done. In doubtful cases, such as those with multiple cavities or those in which it is difficult to see to the bottom, operation in two stages is an advance on our earlier methods, and we have recently adopted it when skin flaps are necessary to cover the cavities, especially in such positions as in the head of the tibia, which are specially difficult. In these instances after preparing the cavity we outline the skin flap by a deep incision all round except at the side to be left as a future pedicle. By this means we hope that in three weeks the circulation through the pedicle increased by cutting off the blood supply from other directions, will suffice to nourish the flap, but our experience with this method is still insufficient to allow of confident statements.

The only addition I have made to the methods described in the bipp book is that now the skin around the wound is dusted with sterile boracic powder before the wound is dressed. It is also not always wise to aim at the surgical triumph of a wound healed under a single dressing left untouched for three weeks. Blood escaping into the dressing makes it moist, and especially when old scars are present these are apt to break down and produce raw septic areas which interfere with primary healing. A second dressing performed at once with gauze wrung out of spirit may save the situation, and it is preferable to the 'picking' which we found so servicable in the earlier and more strenuous days during the war. If the wound is at all moist, dressings should be changed daily until it is dry.

Numerous case reports of exceptional interest are given in detail. JOHN DUNN, M.D.

Page, C. M., and Perkins, G.: Some Observations on Bone Grafting with Special Reference to Bridge Grafts. *Bull. J. Surg.* 922, 1917, 540.

The authors define a bridge graft as a bone implant filling a definite gap in a bone and ultimately becoming part of that bone. As all of the cases recorded were those of adult males the new bone formation from the periosteum seen in children is not considered.

Brief reference is made to the various theories of bone healing.

laryngeal canal dies. Absorption of bone begins at once and subsequently involves the whole graft. Leriche and Pollock maintain that the whole graft dies.

The authors believe that some portion of the

JOURNAL CLINICAL SURGERY AND A GYNECOLOGICAL PROGRAM
JOHN MITCHELL, M.D.

Lesaff, R. W.: The Diagnosis and Treatment of Some Common Injuries of the Shoulder Joint. *Surg Gynec & Obst* 1931 xxiv 437

The author is of the opinion that the symptoms of injury or inflammation of the shoulder joint may be more clearly interpreted by reviewing certain anatomical peculiarities.

In the course of evolution, the shoulder joint has

less liable it is to fracture.

Fixation methods differ. The authors state that

fragment the authors cut a slot in the compact bone about 1 mm. narrower than the graft and tap the opposite end of the graft into it.

If necessary catgut kangaroo tendon, or wire

should be avoided if possible.

Infection and successful grafting are not incompatible providing the graft is firmly embedded.

at any time up to two years from the date of operation. Their site is usually about the middle of the graft.

Postoperative treatment consists of a six-weeks

bone the scapula. Consequently certain movements, such as abduction, depend upon co-relation of the shoulder-girdle muscles. Some of the muscles are intimately related to the joint structures, their tendons merging into the capsule. Some of these tendons are separated by bursae. The most important of the bursae is the subdeltoid. With regard to their strength and leverage the muscles of the shoulder are arranged to favor the abducted position of the arm.

preventing their adaptive shortening.

The author advocates the use of the platform splint for fixation in the abducted position as the only efficient treatment for moderate and serious injuries of the shoulder joint. In cases in which the attachment of the supraspinatus is torn away and in cases of chronic subdeltoid bursitis surgical treatment may be necessary.

JOHN W. POWERS, M.D.

Straub, G. F.: Deltoid Paralysis and Arthrodesis of the Shoulder Joint. *Surg Gynec & Obst* 9 xxiv 476

Paralysis of the deltoid muscles will render a normally functioning forearm and hand worthless.

gymnastics, and massage. Complete restoration of function by this means is doubtful. The necessary braces and splints should be employed to prevent

The curative measures are (1) nerve grafting, (2) muscle transplantation, and (3) arthrodesis of the shoulder joint.

doubtful

Muscle and tendon transplantation have given somewhat better results. The paralyzed deltoid has been replaced by the pectoralis major or as in Hoffa's cases, by a part of the trapezius.

The best result is given by a true bony ankylosis of the shoulder joint. The operative procedure is as follows:

The joint is opened by an incision 4 in. long extending from the acromion to the coracoid process.

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moved down to the spongiosa, and the lower surface of the acromion is exposed. The head is then returned to the capsule in close apposition to the glenoid cavity and the acromion. The arm is abducted at right angles to the body, somewhat inwardly rotated, and slightly flexed to the position of election. A hole is then drilled through the acromion and into the center of the head of the humerus. Into this hole a dowel-peg obtained from the tibia is inserted. A tenodesis of the biceps tendon is then performed at the intertrocanteric groove, the wound is closed, and the shoulder is immobilized in a plaster cast.

REMARKS: 8 READER, M.D.

Krukenberg, H. Substitution of the Opponens Pollicis Muscle (Ueber Ersatz des Muskels opponens pollicis). *Zschr f orthop Chir* 9: 231, 1918.

To overcome the loss of the opponens pollicis muscle in the hand, a portion of the peroneal nerve is transferred to the proximal joint of the middle finger.

first joint to the proximal joint of the middle finger. The nerve is then transferred to the first dorsal web space and the crossing branch of the

median nerve. A longitudinal incision is made on the radial side of the first metacarpal bone and a tunnel formed in the ball of the thumb. The split tendon is then drawn through to the metacarpus and securely sutured to the latter while the middle finger is extended and the thumb is laid in the hollow of the hand to relax the tendon. The hand is then bandaged in this position for thirty days.

The result is perfect. The thumb can be placed over the hollow of the hand without closing the fist. An essential condition is of course, normal movement of the second to fifth fingers. (Z)

Bearse, C. Amputation Stumps and Their Adaptation to Artificial Limbs. *Surg Gynec & Obst* 19: 3: 1917: 543.

On the basis of their adaptation to artificial

limbs (the cases were kept under observation until the artificial limb was worn with comfort for a sufficient period of time).

were referred directly by the surgeon. Of those that were so referred very few were still under the surgeon's observation. But more than this they stated that in many instances in selecting the amputation site the surgeon apparently gave no thought to the future usefulness of the stump.

interfered with obtaining maximum service from the prosthetic appliance. In other words lack of co-operation between the limb maker and surgeon frequently caused bad results which were preventable.

Because of these observations the author discusses the essential points regarding the site and type of the amputation and the most common complications.

The article is summarized as follows:

Do not lose sight of your patient after an amputation until a properly fitted limb has been prescribed and is worn. The sooner it is worn, the better.

1. Instruct patients that if they have pain at any later date, they should return to you rather than to the fitter.

2. Instruct patients that if they have pain at any later date, they should return to you rather than to the fitter.

garding the outcome amputate at the point of election.

6 The ideal site for amputation of the leg is 6 to 8 in below the knee. Try not to make the stump any shorter. There is nothing gained by having it longer; greater length may be detrimental.

7 In treating stump complications it should

JUN JUL AUG SEPT

Bennett, G. F.: Lengthening of the Quadriceps Tendon. *J Bone & Joint Surg* 92 A 14 70

the function of the other three muscles forming the quadriceps.

Bennett believes that changes within the knee joint are comparable to the changes to be expected in the ankle joint if the tendo achillis were lengthened to correct an equinus deformity which had persisted for a long time. Capsular changes are an entirely secondary consideration.

In one case cited in which the loss of motion had persisted for more than seventeen years the operation described restored flexion to 90 degrees. No contracture of the capsule was noted at operation.

A comminuted fracture of the patella resulted in a stiff knee. This was corrected by reducing the size of the patella. No capsular contraction was noted. Fractures of the femur resulting in adhe-

The patient's position on the operating table should permit 100 degrees of knee flexion. This is obtained by extending the leg over the operating table.

A straight incision extending from the middle of the patella to the junction of the middle and lower thirds of the femur is made on the anterior surface of the thigh through the subcutaneous tissues and fascia. By lateral blunt dissection, the vasti, the attachment of the rectus, and the capsule of the joint are exposed. If there are adhesions the exposure is made to permit a thorough inspection.

In a simple contraction not associated with adhesions of the tendon and muscles to the femur

enough to include the tendinous section of the crucatus and are connected with a short incision across the tendon at its upper margin. The entire tendon is directed free from the rectus to the

If marked adhesions are present in the lower

point

Plaster-of-Paris immobilization follows. The knee is kept in 30 degrees of flexion for three weeks. The plaster is then cut and passive motion is begun.

cause loss of knee flexion

5 Capsular changes are not as constant as muscular changes. Knee joints that cannot be forcibly flexed before the tendon is released can be flexed easily afterward.

4 Contraction of the muscular tissue will probably follow long immobilization for inflammatory knee-joint disease but such joints, if sensitive, should not be operated upon.

Simon, R. and Stulz, E.: Cases of Accidental Injury to the Knee Joint Treated by Incision and Primary Suture and Cured with Perfect Functional Results (Quelques cas de plaies accidentelles de l'articulation d genou traitées par l'incision et la suture primaire et guéries avec intégrité fonctionnelle absolue). *Rev de chir* Par 9 2, 24, 34

The authors have treated injuries of the knee joint by excision and primary suture with excellent results. The histories of five such cases are given. In two, the injuries were due to cutting instruments

and in three were contused wounds. Most of them were contaminated. In each case the operation was

poliomyelitis at the age of 4 years. Two operations had been performed previously on each foot but were unsuccessful. The operation described was performed on both feet and a plaster dressing was

1

The synovial wound always healed by first intention but in some cases there was a slight slough of the cutaneous edges which retarded

knee

After the operation the limb was placed in a splint or a posterior plaster apparatus and the quadriceps femoris was massaged. The patient was instructed to contract the muscles of the leg and foot several times during the day. A few days after the operation the immobilization apparatus was removed and the patient instructed to make flexion movements of the knee without aid. After ten days the apparatus was entirely removed, and after three to four weeks the patient was permitted to get up.

W. A. BRIDGMAN

Schultz, O. E.: A New Method of Operative Treatment of Foot Deformities. *J. Bone & Joint Surg.* 9: 245, 19

After operation the calcaneus deformity is held in

pushed aside down and outward. The bridge of

heel by means of a strong tendon and at the same time to secure adduction and inward rotation of the heel. His method is as follows:

The tendon of the peroneus longus is cut in the sole pulled out behind the external malleolus and brought to the inside between the gastrocnemius and the flexor digitorum to the posterior part of the internal malleolus. Then, through a canal between the plantar side of the calcaneus and the plantar ligament, the tendon is passed backward and under the calcaneus to the outside of the calcaneus where it is fixed to the periosteum. At the same time the heel is placed in inward rotation adduction and supination. Contraction of the transplanted tendon will then produce adduction, supination and inward rotation.

Schultz cites two cases in which the operation was performed with good results.

For club foot he recommends cutting the tendon

laterally from the head of the talus medially and posteriorly from the inner part of the bifurcate ligament, and in front of the ligamentum talocalcaneum interosseum forward and calcaneo-navi acetabuliform tarsus. A

tuberosity of the first metatarsus

In this manner the tarsus is divided into two unequal parts which move on each other easily. The medial and smaller includes the greater part of the navicular and first cuneiform bones a small portion of the second cuneiform and the base of the first metatarsal. In the correction of the

fully sutured, particularly on the inner border of the foot

The postoperative treatment consists of two weeks of over-correction in plaster-of-Paris two

weeks of active movement with hot-air treatment and massage and two weeks of walking with a large solid arch support. After one year the supports may be discarded.

With absolute preservation of the muscles and

With displacement of the metatarsals in the

opposite way this method can be used in the treat-

ment of pes adductus and club-foot. All irreparably deformed and functionally uncorrectable flat-feet in persons over 20 years of age should be thus treated, if possible before any loss has taken place.

SEVER (2)

Whitman A.: Astragalectomy and Backward Displacement of the Foot: An Investigation of Its Practical Results. *J Bone & Joint Surg* 9: 2 21 1926

Astragalectomy and backward displacement of the foot gives good results in the hands of any competent orthopedic surgeon. Moreover as postoperative

Dezot E.: A New Method of Astragalectomy (Sur un nouveau procédé d'astragalectomie). *Rev de chir* 1925 22, 31

The author describes a new method of astragalectomy

astragalectomy

The steps of the operation described are as follows

from there turned to the dorsal surface of the foot above the tubercle of the scaphoid. This incision is carried down to the bone on the first stroke

Oblique osteotomy of the internal malleolus is done and the malleolus detached en bloc from the tibial plateau.

formed for foot deformity being used for dangle foot and as a last resort for paralytic varus and

were used

6 The foot is then replaced and the internal malleolus sutured

7 Tamponade and drainage of the cavity are done

According to the author this procedure is ex-

traumatic cases

W A BISHOP

MacLennan A.: The Treatment of Congenital Hallux Varus. *Surg Gynec & Obst* 19 2, 1927 540

The author presents 120 cases of congenital

because of paralysis above the knee

D VID TAYLOR, M D

SURGERY OF THE SPINAL COLUMN AND CORD

Pitts, R. T.: Fracture and Dislocation of the Second Cervical Vertebra in a Child: Case Report. *Island J Surg* 1922 xvii 6

Fractures of the upper cervical vertebrae are comparatively rare during childhood. In adults, cervical fracture constitutes about 30 per cent of all fractures of the spine.

The author reports the case of a child of 18 months who was struck by an automobile six

years before a diagnosis is made. Of the twenty-two cases reported, the lesion was in the lumbar

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great frequency of congenital anomalies in its development, size, and shape and its plane of articulation with the first sacral vertebra.

A history of injury was obtainable in seventeen

or symptoms of pressure on the spinal cord.

X-ray examination showed dislocation and fracture of the second cervical vertebra. The child was kept in a hospital bed for six weeks with 3-lb traction on its neck, a chin and occiput strap being used. It was then taken home against advice before it was fitted with a head brace. While at home it refused to lift its head from the pillow even though it raised its body on its knees. A crutch type of brace with posterior bars extending along

brace was worn four months. It was removed at

without injury to the spinal cord. If this patient had been older the ideal method of treatment would have been a plaster-of-Paris jacket with a grow band. The brace had the advantage that it gave the child freedom of its body at night.

WALTER C. BRADY, M.D.

Hibbs, R. A.: Fracture-Dislocation of the Spine Treated by Fusion. *Arch Surg* 9 15 1909

Fracture dislocation of the spine is a condition overlooked in a large percentage of cases the symptoms persisting from six months to twenty-five

completed ossification of the vertebra destroyed their capacity for accommodation to the changes in shape and position.

In thirteen cases operation disclosed a fracture of the body and processes, and in nine cases a fracture of the processes only. There was no evidence of nerve root or cord injury but complaint was made of pain in the neck, shoulders, or back or

motion and pain on extension due to impingement of the spines.

Very careful X-ray examinations were of value merely in indicating the need of operative interference but by no means denoted the extent of the injury or the changes in the adjacent joints.

Fusion was effected by the classical Hibbs method. Fusion

and below the injury was included in the fusion

reasoning as complete relief was given in every case. DAVID R. THORP, M.D.

SURGERY OF THE NERVOUS SYSTEM

Looser, C.: The

of the distal extremity of the humerus which recover without presenting nerve complications.

The author

found in the

cases in or

injury and

fifty years and Hohmann in 1921 reported a similar

Late paralysis of the ulnar nerve following injury is rare, considering the large number of fractures

case in which the paralysis developed seventeen years after the injury

The author's first case was that of a woman of 31 years whose left arm was deformed as the result of an injury received nineteen years previously. Electrical treatment and massage gave excellent results.

The second case was that of a man of 45 who sustained an injury to the left elbow forty years previously and four years later fractured the right elbow. Examination showed deformities of both of

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Laeswen, A. Freezing of the ...

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cases less severe but with marked valgus a cuben

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The author has been successful in treating the severe pain of acute gangrene during the waiting period up to the time of demarcation by freezing the sciatic nerve.

The case reported was the second one in which anastomotic attacks of pain of arteriosclerotic origin in which good results were obtained. The

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of Paris dressing was removed and is now disappearing.

The operation was performed under general anesthesia with oblique suspension of the head in a

disappear but the sensory paralysis receded partially. It is a well-known fact that protracted attacks of pain precede the gangrene. In this case the vascular spasm lasted fifteen hours.

Under similar circumstances, Z. and H. and H. and H. resected the peroneal and tibial nerves successfully.

The author discusses in detail the effect of the freezing paralysis on (1) the pain, (2) the disturbances in circulation, and (3) the development of trophic ulcers.

The pain is relieved, but there is a motor paralysis of the foot. The return of sensation is the slow

unable to demonstrate any influence of the nerves upon reactive hyperemia (diseased vascular system?)

The trophic disturbances appearing after the freezing are of great interest. Since no scar tissue is formed at the point of the freezing and therefore in the regeneration this area is not the source of stimuli favoring the development of trophic ulcers. The interval up to the time of appearance of such

to the time of the appearance of the ulcers. Bruening lays stress on the importance of defective regulation of the vessels. Disturbances of the regulation of the vessels.

the occurrence of healing after resection of the neuroma and before regeneration of the nerve. However, as this stimulation is absent after freezing other conditions must be responsible to some extent.

The development of ulceration was almost

developmental stage in the regeneration of nerve which acts as a tissue stimulant without being sufficient for other reactions (unilateral tissue). Therefore there may be a critical stage of regeneration which predisposes to trophic disturbance. In the case reported the ulceration on the heel had disappeared after eight and one half months but the more peripheral granulating part had not healed.

Because of its harmlessness the procedure described is preferable to the Wiering operation. The technique may be still further improved. Perhaps the freezing may be done more deeply so that the foot muscles are not paralyzed. The advantage of higher freezing lies in its effect upon more extensive areas of the vascular system.

KLEINSAMPER (Z)

Heller: Surgical Treatment of Non-Traumatic Sciatica. Über Nervenwurden. Behandlung mit elektrischen Strömen. *Zentralbl. f. Chir.* 1911, 41, 1269.

The simplest non-surgical treatment of sciatica and one which, in from 50 to 70 per cent, affords relief about a cure consists of intraneural injections of novocaine and common salt. Heller states

that it is absolutely necessary to make the injections between the nerve strands as the fluid must loosen adhesions. Large quantities must therefore be injected. A few injections are justified only in neuralgias of the terminal branches of individual sensory nerves. Heller's method is indicated only in exceptional cases.

Heller operated on eleven cases by exposing the trunk of the sciatic nerve at the foramen ischiadicum (neurolysis). In nine cases a permanent cure resulted. In two cases there was recurrence within

drawings demonstrating how intraneural inflammatory adhesions may be the cause of sciatica and gives photograph taken when the trunk of the sciatic nerve was exposed to show that variety of the venous anastomoses and false insertions of the piriformis muscle are also responsible for sciatica by causing traumatic injury. Ligation of the various

was not possible. It is replied in the negative and in reference to the first remark that the varicose formation had already been described by Quain. VANDERLIN (Z)

GILL, A. B.: The End Results of the Stedden Operation in Cases of Spastic Paralysis. *Arch. Pediat.* 1910, 27, 320.

In cases of spastic paralysis the absence of cerebral control causes the larger and stronger muscles of the limbs, over some of their more feeble antagonists, to perform a function. At first this function is functional but later it becomes abnormal.

loss of power by relaxing the innervation of the finger muscles and, in part, breaking the vicious circle of the peripheral reflex arc which causes the spasticity.

The nerve is exposed, freed from the surrounding tissue, partially retracted out of the wound and

case in which the paralysis developed seventeen years after the injury.

The author's first case was that of a woman of 21 years whose left arm was deformed as the result of an injury received nineteen years previously. Electrical treatment and massage gave excellent results.

The second case was that of a man of 45 who sustained an injury to the left elbow forty years

Учебник 12

Larssen, A. Freezing of the Sciatic and Sympathetic Nerves in Painful Angiospastic Conditions of the Lower Extremities (Verwundung des Nerven Verwundung und des Nerven sympathicus bei angiospastischen Schmerzzuständen der unteren Extremität) *Alleschen und Nischke* 1932, box, 180

The author has been successful in treating the severe pain of acute gangrene during the waiting period up to the time of demarcation by freezing the anesthetic nerve.

The case reported was the second one with angor pectoris attacks of pain of atherosclerotic origin in which good results were obtained. The

excessive tension and pressure of flexion of the elbow. Whatever its cause, valgus is an important factor increasing the distension of the nerve.

In some of the cases in the literature and in the author's first case simple electrical treatment and rest effected a cure in others, neurectomy failed to cause improvement. In severe cases of degeneration resection of the nerve may be necessary. In

give good results

W. A. BENNETT

exposed, distressed & ill & can be

19 2 77 61

of Pains dressing was removed and is now discharging.

The operation was performed under general

IMHV It is a circumscribed lesion in attacks of pain precedes the gangrene. In this case the vascular spasm lasted fifteen hours

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The pain is relieved, but there is a motor paralysis of the foot. The return of sensation in the skin

these there was complete recovery 1001 121 January
da According to French investigations traction on
the plexus plays an important role in the organ

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chickens on the proliferation of fibroblasts by 35 per cent. The action of heat at 70 degrees C. increased the inhibiting action by 35 per cent. When the serum was heated to 100 degrees C. its inhibiting action became about equal to that of non-heated serum. Therefore heated serum contains a factor which markedly inhibits the growth of fibroblasts and develops at or resists a temperature of 70 degrees C.

These experiments confirmed the results obtained by another investigator in a study of the growth of guinea-pig bone marrow in homologous serum unheated and heated to 56 degrees C. The growth of bone marrow was found to be more extensive in unheated than in heated serum. The differences in the action of both sera were more striking than in the experiments reported herein. This was due to the fact that the investigator used a medium con-

a change which renders the serum more toxic for homologous fibroblasts. It may be attributed also to the destruction of substances presenting the same heat resistance as complement and emboprotector and partly protecting the cells against the inhibiting action of a third substance resisting heat at 70 degrees C. Serum modified by heat acts in an opposite manner on heterologous tissues. Heated serum is a better culture medium for heterologous cells than unheated serum.

Recently the authors have found that the inhibiting action of dog, rabbit and cat serum heated to 56 and 66 degrees C. on the rate of multiplication of fibroblasts is very much decreased. It seems that the factors which protect the organism against foreign cells and bacteria might also oppose the growth-inhibiting factor of serum and allow the cells to display a greater activity.

The results of the authors' experiments are summarized briefly as follows:

The inhibiting action of homologous serum on the proliferation of fibroblasts *in vitro* was increased after the serum had been heated to 56 and 70 degrees C. This action decreased after the serum had been heated to 100 degrees C. GABRIEL E. BRUN, M.D.

BLOOD AND LYMPH VESSELS

Wilson, G. Brachial Monoplegia Due to Thrombosis of the Subclavian Vein. *Am J M Sc* 9, 2, 1904, 890.

neuralgic or other symptom.

Examination showed a questionable weakness of the lower half of the right side of the face. The

posterior cervical glands were slightly enlarged. In the right arm which was paralyzed and greatly swollen there were no tendon reflexes. The swelling was doughy and pitted on pressure. Several large blebs were present on the extensor surface of the forearm. The radial and brachial pulses could not be felt. The other extremities were normal. The lungs presented signs of acute bronchitis, and the right upper lobe showed signs of infiltration. The heart was normal. No tubercle bacilli were found in the sputum but a guinea-pig injected with centrifugized sediment of the sputum died of tuberculosis. There was a mild secondary anemia. The white blood count was below 10,000. The Wassermann reaction was negative. Blood cultures were sterile. The temperature ranged between 99 and 101 degrees F.

The patient recovered considerable power below the elbow but practically none above. The radial pulse returned as the swelling of the arm subsided.

sected out.

Case 3. The patient was a negro lead worker aged 22 years, who had been treated previously for secondary syphilis, bubo and tertiary syphilis. He had given up his work with lead because of the symptoms of lead poisoning. One morning he awoke with intense swelling and paralysis of the entire left arm. After the first twenty-four hours which were free from pain, severe pain developed. About thirty incisions made in the arm were followed by the discharge of considerable serum and sub-

atrophy of the muscles of the left hand and forearm. The Wassermann test of the blood and spinal fluid was negative. The patient was treated with anti-syphilis remedies, massage and galvanism. At the present time sensation and motion in the extremity are returning and the author believes that recovery will be complete.

WILSON, G.

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ALLAN C. BURKE, M.D.

Moore, C. A. A Case of Subclavian Aneurysm with Cervical Ribs. *Lancet* 923, vol. 1915.

The author reports a case of aneurysm of the subclavian artery in a man aged 55, treatment extensive.

MISCELLANEOUS

CLINICAL ENTITIES — GENERAL PHYSIOLOGICAL CONDITIONS

Loebbert A. and Loebbert, H.: The Genesis and Therapy of True Tumors (Genese und Therapie der echten Geschwulste) Hamburg Behre 19

True tumors owe their origin to the tendency of cells to regenerate along false paths. Precarcinomatous diseases, mechanical, thermic, actinic, and chemical stimulation may favor tumor growth. The cell reacts first with a loss of protoplasm resulting in a bare nucleus. This nucleus is then destroyed or carried away by the wandering cells or disappears in the neighboring cells. Only an

nucleus proliferation such a change occurs more

nucleus proliferation. This all the more readily. The cell loaded with potential energy by the absorption of a nucleus produces daughter cells which endeavor to separate themselves from their surroundings and, as a result, become freed from the regulating influence of the organism and grow excessively.

The blastoma cells vary in their form and functional valency according to the nature of the nuclear material absorbed and other factors. In

neoplasms

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They state that it frequently extends beyond the limits of the inguinal glands and assumes the appearance of a generalized disease involving all the lymphopoeitic system and varies in its intensity despite its chronicity. It appears able to evolve

malignant. An accurate name cannot be given it

meritless the authors suggest designating it as "benign suppurative paraneoplastic lymphitis of septocentric type" on account of its evolution and its extension to the lymphopoeitic system.

The clinical details, differential diagnosis, treatment etc. are dealt with. W. A. BARON

SERA, VACCINES, AND FERMENTS

Carrel, A., and Ebeling, A. H.: Heat and Growth Inhibiting Action of Serum. *J. Exper. Med.* 93: 437-447

It is known that plasma or serum obtained from an adult animal restrains the growth of a pure cul-

The authors call attention to a variety of adenopathy of unknown nature which is almost always

ciencies on the proliferation of fibroblasts by 25 per cent. The action of heat at 70 degrees C.

fibroblasts and develops at, or resists, a temperature of 70 degrees C.

These experiments confirmed the results obtained by another investigator in a study of the growth of guinea-pig bone marrow in homologous serum unheated and heated to 56 degrees C. The growth of bone marrow was found to be more extensive in unheated than in heated serum. The differences in the action of both sera were more striking than in the experiments reported herein. This was due to the fact that the investigator used a medium containing a very large amount of serum and observed lymphocytes instead of fibroblasts.

The increase of the inhibiting power of serum after it had been heated to 56 and 70 degrees C. may be considered as due to the production by the heat of a change which renders the serum more toxic for homologous fibroblasts. It may be attributed also to the destruction of substances presenting the same heat resistance as complement and emboloprotector and partly protecting the cells against the inhibiting action of a third substance resisting heat at 70 degrees C. Serum modified by heat acts in an opposite manner on heterologous tissues. Heated serum is a better culture medium for heterologous

organisms as they multiply increased. It seems that the factors which protect the organism against foreign cells and bacteria might also oppose the growth-inhibiting factor of serum and allow the cells to display a greater activity.

The results of the authors' experiments are summarized briefly as follow.

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The author reports a case of

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C. M. D.

atrophy of the muscles of the left hand and forearm. The Wassermann test of the blood and spinal fluid

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WALTER C. BURKE, M.D.

Moore, C. A. A Case of Subclavian Aneurysm with Cervical Rib. *Lancet* 9 Oct 1925.

The author reports a case of sacular aneurysm of the subclavian artery.

1

expansive pulsating, walnut-sized prominence in the

aneurism of the internal carotid artery near the base of the brain

Cannoyt describes in detail the topographic anatomy of the four cranial nerves and discusses

a second aneurism of the internal carotid artery, divided at its neck well beyond the

more but to a momentary increase in its volume. This was absolutely pathognomonic because only a sac in direct communication with an artery can show it. Moreover, compression of the primary carotid

case the aneurism spring from the front of the artery. Persons with cervical rib seek treatment

digital compression

W. A. Barlow

Silberberg, I. W. The Palpation of the Popliteal Artery (Ueber die Palpation der Arteria poplitea). *Medizin* 1921 4, 3

The peculiar predisposition of the popliteal artery to aneurismal and thrombotic diseases is due to its exposure to injury by the posterior border of the tibia during full joint extension and its displacement by various positions of the knee. In the absence of a pulse in the dorsalis pedis

Cannoyt, G. A Spontaneous Triple Exo-Extra

The author has had the opportunity to treat two cases of paralysis of the four cranial nerves—the glossopharyngeal, the pneumogastric, the spinal, and the great hypoglossal. One of the patients was a man with a malignant tumor of the neck, a branchioma, and the other a woman with an

— aneurismal anastomosis between the internal carotid and vertebral arteries

escapes the palpating finger and cannot be fixed against any firm background. After repeated efforts, the author believes he has found a method which though it requires a certain amount of

firmly supported in its entire extent. In this way complete muscular relaxation and freedom from

palpate the pulsation much more frequently in the lower triangle where the artery, contrary to Piragoff's findings, lies nearer the surface although covered by the vein and a neurovascular plexus.

In conclusion a technique of amputation in a

probably influenced by the removal of the thrombus from the popliteal artery, a severe hemorrhage was arrested by ligation. ORRIS OTTER SACKER (2)

FIGURE 11. Incision of the Thrombus

upon three days later.

An incision 1 cm. long was made in the course of the non-pulsant below the

halted. One centimeter below the pulsation the artery was incised for a distance of 3 cm. and an organized adherent thrombus was pressed out in fragments from below by the knife.

ORRIS OTTER SACKER (2) were treated in the same manner. The thrombus in the upper segment came out intact as it was not adherent to the vessel wall. The arterial incision was closed with fine silk.

After two days the pulsation of the dorsalis pedis disappeared, the pain disappeared gradually the fourth and fifth toes sloughed off, and the stumps of the toes healed. Ten months after the operation the patient was able to walk normally and the foot was healed and free from pain. The femoral artery pulsated 7 cm. below the inferior angle of Scarpa's triangle although there was no pulsation in the dorsalis pedis artery. This is explained by the position of the deep femoral artery which arises about 5 cm. below the femoral ring and by the smoothness of the intima at this point as compared with the roughness of the intima of the lower segment a condition favorable for the formation of another thrombus which doubtless developed.

EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Behrend, M., Radach, H. E., and Kerschner, A. G.: The Comparative Results of the Ligation of the Hepatic Artery in Animals. Its Application to Man. *Arch Surg* 93: 661.

Experiments made on dogs, cats, guinea-pigs and rabbits demonstrated that histologically there is

fact seems to indicate an acute anemia of the liver followed by a general necrobiosis of the hepatic tissue.

The hemorrhage is

Cases reported in which ligation was done on account of aneurysm or some other pathologic condition. MORRIS H. EVANS, M.D.

Williamson, C. B. and Mann, F. C.: Postoperative Peritoneal Adhesions: An Experimental Study. *Surg Gynec & Obst* 1922 LXIII 674.

In an experiment

Williamson but in some cases proved harmful since it prolonged the oozing of blood.

no more fertile field than the questions of regeneration and restitution of tissues after injuries, dis-

poured into lead tubes the same were in water

Ebeling, A. H. Distribution of Wounds The Temperature Coefficient. *J Exper M* 1922
vii 857

Cicatrization is a complex phenomenon which

the author considers as a process of

He then
stimuli
successfully combatted by sepsis and antiseptics
Next in importance are foreign bodies In our
every-day surgical practice tampons, drains, and

operation

For his experiments two young alligators were
chosen because these animals may be kept as well
at a temperature of 34 degrees as at 23 degrees C
They weighed respectively 300 and 720 gm

After a rectangular flap of skin on the ventral

in a room with an average temperature of 23
degrees C

in the same manner and with equal success A
smooth course and rapid healing were obtained also

depends on the rate at which certain chemical changes
take place
Gordon E. Messer MD

Schwarz, W. Some Problems of Surgery Connected
with Questions of Regeneration (Einige Auf-
gaben der Chirurgie im Zusammenhang mit Re-
generationsfragen). *Verhandl d russ Chir Ges*
Petersburg, 1922

Inspired by the brilliant work of Baur the author
undertakes to show that surgical regeneration has

weeks

The technique of the tamponade dressing is yet
to be perfected The application of the ordinary

bone cavities

b. Last section of the article (the author dis-

obtaining true muscle regeneration in extravasated blood are cited. These experiences demonstrate that it is no longer necessary to regard the replacement of lost tissue by connective tissue as an absolutely unavoidable evil.

Animal experiments for the study of muscle regeneration have been begun in Schaeck's clinic and the results will soon be reported. SCHAECK (Z)

ROENTGENOLOGY AND RADIUM THERAPY

TETTER, F. The X-Ray Treatment of Visual Disturbances Due to Tumors of the Hypophysis (Le traitement radiobéniologique des troubles visuels dus aux tumeurs de l'hypophyse) *Presse Méd. Par.* 1922 XXX, 179

In 148 cases of hypophyseal tumors without acromegaly there were thirty-four cases of blindness, thirty-seven cases of bitemporal hemianopsia, two cases of homonymous hemianopsia, fifteen cases of optic neuritis, twenty-seven cases of atrophy of the optic nerve, and fifteen cases of papillary stasis. Twenty-seven per cent of all cases showed some ocular paralysis.

The diagnostic value of roentgenography in cases of hypophyseal tumors and the therapeutic value of the X-ray are now generally recognized. While it is admitted that perfect technique diminishes the still considerable dangers of hypophysectomy the use of glandular extracts, mercury and the X-ray should be tried first. The author has been able to collect ten cases of hypophyseal tumors which were greatly benefited by the X-ray (one of his own) especially as regards the visual disturbances. Carloti quite recently reported four other cases. The greatest improvement occurs in the functional disturbance characterized by cephalalgia, diminution of visual acuity and a change in the visual field. In the author's case the cure has persisted for nine years.

Two routes have been proposed to reach the hypophysis: the mouth and the cutaneous route. The mouth has the double advantage that it is the most direct route and presents a relatively slight thickness of tissue to be penetrated by the rays. The only solid obstructions here are the palatal arch and the mucosa of the rhinopharynx, and the sphenoid bone. Beckler combines radiation in the temporal region with local radiation. A special X-ray outfit is necessary for this work.

Hypophyseal tumors are especially amenable to roentgenotherapy. Like all other treatments this will be the more beneficial the earlier it is applied. The degree of the lesion, however advanced, is never of itself a contra-indication. In the majority of the reported cases there was not only an arrest of the growth of the tumor with preservation of the visual field but often retrogression of the lesion. In certain amblyopic or anisotropic zones vision became better and often reached normal. On the other hand, healthy parts of the visual field became involved in some cases. The indications and contra-indications for roentgenotherapy of hypophyseal tumors should therefore be clearly limited.

Cases of tumor of the hypophysis may be divided into two classes according to their symptoms. In those of the first class the symptoms are local and

at a distance and of an acromegalic and trophic type. The X-rays may arrest the abnormal growth of the skeleton in these cases but cannot cause the retrogression of acquired lesions. Their employ-

the advanced period the period of decline

W. A. BARNES

CARMAN, R. D. Errors in the Roentgenological Diagnosis of Duodenal Ulcer. *J. Radiol.* 9, 63

Apart from various minor and indirect signs of duodenal ulcer there are but two trustworthy indications of this lesion, deformity of the duodenal contour and the combination of retention with hyperperistalsis in a large but otherwise normal stomach. The errors in diagnosis fall into two groups, those of affirmation, when an ulcer is diagnosed but not found at operation, and those of negation, when an ulcer is not diagnosed but is found at operation.

Among the causes of affirmative error may be noted technical errors and difficulties such as failure to fill the bulb completely, retraction of the abdominal wall and the blending of the bulb shadow with that of other portions of the duodenum or of adjacent concretions. Deformity of the bulb due to causes other than ulcer—such as reflex spasm, inflammatory processes in the right upper quadrant extrinsic tumors, and lesions of the duodenum other than ulcer—such as benign tumors, duodenitis and diverticulum—may also be contributory causes of error.

The causes of negative error may be such technical faults as insufficient milliamperage, improper voltage, an unsuitable tube, or failure to examine

pouré en l'air les tubes dans lesquels se trouvaient les os.

seemed to be prevented.

Fbelling, A. H.: Coagulation of Wounds: The Temperature Coefficient. *J. Exper. Med.* 1922, LXXV 657.

Coagulation is a complex phenomenon which

no more fertile field than the questions of regeneration and restitution of tissues after injuries, diseases and surgical operations. The transplantation of tissues (bone, fascia, fat muscle) on which so

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(1) the aut -- -- -- -- --
seems
No other
small
success
Next to
every-day surgical practice tampons drains, and

phenomenon.

For his experiments two young alligators were chosen because these animals may be kept as well at a temperature of 35 degrees as at 25 degrees C. They weighed respectively 300 and 72 gm.

After a rectangular flap of skin on the ventral side of the animal was resected, they were placed until the wounds healed in a room having a temperature of 35 degrees C. Several days later a second resection was made in a different area on the ventral surface of the body and they were placed in a room with an average temperature of 25 degrees C.

Ebeling draws the following conclusions:

the metabolism and the development of certain organisms in the same manner as a chemical reaction. In spite of the complexity of the factors which bring about coagulation of a wound, it appears that the velocity of the phenomenon depends on the rate at which certain chemical changes take place.

GEORGE E. BERRY, M.D.

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in the same manner and with equal success. A smooth course and rapid healing were obtained also in severe advanced suppurative mastitis (four cases).

weeks

of the reaction will allow. To scatter a course of treatment over a period of weeks is to defeat the very purpose for which it is given. If involvement

is suspected

is

is

is

is

destroyed

In Fishler's private clinic ninety-seven cases of cancer of the lip have been treated. Seventy-two were primary, twenty recurrent, and five postoperative. Of the seventy-two patients with primary cancer, sixty-five recovered and have remained well. Two died of

metastases, however, in which the radiation is sufficient to destroy the tumor, but the means should

improve

surgeon

in the

repair of the wound. Difficulties are not apt to be experienced in the various steps of the operation after a single course of treatment, especially if a proper interval was allowed before the operation. Pre-operative radiation should also tend to minimize the danger of tampering with a malignant lesion in order to obtain a specimen for diagnosis.

DAVID R. BOWEN, M.D.

Fishler, G. E. Cancer of the Lip Treated by Radiation or Combined with Electrocoagulation and Surgical Procedures. *J. Radiol.* 922, 12, 3

Thorough treatment of cancer of the lip must include radiation whatever other form of treatment is used. Any fissure or crust formation on the lip which persists longer than four weeks should be looked upon with suspicion.

The diagnosis can usually be made from a cure

In advanced primary cases a thorough trial should first be made of radium. If this is skillfully applied good results may usually be expected. In some cases, however, only temporary improvement occurs, a stage then being reached in which the disease remains at a standstill or progresses in spite of the radiation. At this stage, complete and thorough local destruction or complete surgical excision is probably the only procedure possible.

DAVID R. BOWEN, M.D.

Bumpus, H. C., Jr. Radium in Cancer of the Prostate. A Report of 217 Cases. *J. Am. M. Ass.* 1922 LXV, 374

The enthusiastic reports of results from the treatment of cancer of the prostate with radium indicate the need of careful analyses of large series

to negative errors

based on bulbar distortion is warranted only when there is constantly found a lesion whose location and

inflammatory processes in the right upper quadrant

duodenum is essentially as follows:

Extrinsic tumors infringing on the bulbar contour are uncommon and are usually palpated during examination. Benign tumors within the bulb are

in common

and are not to be overlooked

from manipulation

The demonstration of a duodenal bulb of normal outline usually signifies the absence of ulcer but a

few cases have been seen in which the duodenal contour was apparently undeformed but an ulcer was found at operation. The absence of deformity may be due to the absence of spasm or the minuteness of the ulcer.

In cases of ulcer located beyond the bulb the distal deformity of the duodenum cannot be distinguished from that ordinarily produced by the valvular constrictions, and ulcers complicated by stenosis with its characteristic signs the lesion is seldom discovered.

Cases illustrating the various types of lesions discussed are reported.

GEORGE H. JACKSON, JR., M.D.

Part of the material was presented at the

of the

deep, whose exact extent cannot be outlined fairly

rather

had never been repaired. The patient's bowels were

experienced severe pain. A lump finally formed in the wall of the rectum and the defendant stated that another operation would be necessary. The plaintiff then went to a rectal specialist, who

in twenty-six or twenty-seven years of practice passed beyond the minor operation for which the patient had come to the hospital and performed a serious major operation to correct or at least to alter this condition. The resulting shock caused death.

The patient went to the hospital for a minor operation for removal of a polypoid growth from the child.

death. The excuse for the major operation which resulted fatally was that one of the physicians present thought that the tissue appeared malignant but on subsequent examination found it to be normal. Whether this condition was such as to render false the representations of the insured that she was in a sound condition mentally and physically had never had any bodily or mental infirmity or deformity and had not been disabled, was a question of fact when the purpose for which the representations were made was taken into consideration, namely to induce the issuance of a life insurance policy. Certainly it could not be said as a matter of law that such representations were false. Moreover even if they were false they were not fraudulent.

Because the question of the falsity of the representations was a question of fact for the jury and the court could not dismiss the plaintiff's com-

plaintiff's damages against the defendant but as he called no medical experts to testify as to what constituted proper treatment the judgment was reversed and a new trial granted.

A physician is bound only to have and to exercise competent skill in treating a patient. The results may be of such a character as to warrant the inference of want of care from the testimony of laymen or in the light of the knowledge and experience of the jurors themselves. The localized pain in this case might have suggested the cause of the patient's suffering to a careful physician. A long continuance thereof without relief under the ministrations of the general practitioner might

advise his patient to resort for help to others of wider experience. The jury might properly find that he was guilty of malpractice in this regard. The defendant's fault seems to have been the unworthy and unskillful attempt to cover up the accident rather than the accident itself.

It was error to instruct the jury that the mere breaking of the needle was not necessarily negligence, yet might be some evidence of negligence. Common sense suggests that the condition discovered by the rectal specialist was incompatible with successful surgery and medical treatment. However when the evidence of the defendant's surgeon came into the case with a reasonable explanation showing what may happen when the proper degree of care and skill is exercised the possible inference of negligence from the breaking of the needle alone was driven out and the jury should have been so instructed. The rule of *res ipsa loquitur* placed on the defendant the burden of going on with the case but in the absence of medical evidence to the contrary it must be assumed on this appeal that the breaking of the needle was not due to negligence. An instruction

reversed and a new trial granted.

J. A. CAMPBELL

Breaking of Needle and Not Advising Seeing an Expert. *Brown vs. Dean* (11) 3, 12 E.R. p. 1.

In March, 1916 the defendant with the assistance of another physician who gave the anesthetic and of a nurse, performed an operation on the plaintiff's ulcer. The ulcer needed with not using the anesthetic well and haste was necessary.

The defendant did not tell the plaintiff about the needle but continued to treat him until the fall of 1917. In January, 1918 the defendant burned some small ulcers with nitrate of silver. He then prescribed an irrigation treatment which was extremely painful, and when he inserted his finger with a rubber covering and touched a certain spot or the irrigating tube touched this spot, the plaintiff

was called in for the operation, but a jury might say that at some time in the subsequent treatment the defendant should have sought or at least suggested counsel when he failed to give the plaintiff any substantial relief from the extreme agony he suffered.

J. A. CAMPBELL

of cases in which the treatment has been carried

examined

each

The average duration of life in 241 untreated cases of cancer of the prostate observed and record

cases.

WALTER H. HARRIS, M.D.

LEGAL MEDICINE

Abnormal and Unknown Conditions and Representations of Good Health. *Eastern District*
Pac. Div. Marks Inc. vs. Travelers Ins. Co. (N. T.)
100 F. 2d 337 p. 8

too large and that 400 to 600 mg.-hrs. was the maximum for safety. Forty of the fifty patients regarding whom complete records were obtained lived an average of seventeen months after the treatment and an average of forty-five months

chronic intestinal obstruction with a disease condition causing adhesions.

The evidence showed that she was 54 years of

substance of the gland by means of needles

In Group 2 there were thirty-seven patients

unchanged, but three weeks previously a sensation

patients making little or no improvement, and was

Physician's Report Not Enough to Sustain an Award. *Stimel vs. Jernett & Co. et al.* (N. Y.) 190 V. T., Supp. p. 839

When the last hearing in this case was had before the commission in proceedings under the Work

the injury complained of and the minds of the jurors were in equipoise on that question, the verdict must be for the defendant.

As it was a question of the safety of the machine rather than of its efficiency and as there was no testimony that it was dangerous when properly used but on the contrary all the experts testified that it was safe when used with proper safety devices, the defendant was not required to submit to the jury any issue involved in the exercise of care

physician made a report to the commission and it was evident that his report formed the basis of the determination that there was a loss of the use of one-third of the hand. Apparently the report was not submitted at any hearing of which the employer and the insurance company or carrier were notified. The physician did not appear for examination and there was no opportunity to cross-examine him. The award therefore stood on the physician's unsworn statement which was received outside of

protecting the leg and whether the burn assuming there was a burn, was due to the failure to use a meter and protection for the leg.

J. A. CASTAGNOLLO

J. A. CASTAGNOLLO

Physician Not "Immediately" Disabled by Accident
Herring v. Bassett Mfg. Co., Ann. of Amer. (Va.), 235 S. W. 2d 853

In November 1915, while driving through the

and was operated on by another surgeon for the reduction of the hernia. He made an incision, examined the abdominal viscera, and found that the fallopian tubes and the appendix were in bad condition. They together with the ovaries, were removed by him. He discovered no tumors about

THE COURTROOM

At the trial, the court sustained a demurrer of the defendants to the plaintiff's evidence. That judgment was reversed and a new trial directed. The court stated that the defendants made a serious

Evidence of Malpractice in Pregnancy Case Sufficient to Go to Jury
Kearney v. Smith & al (Kan.) 201 Pac. R. 201

The plaintiff introduced evidence which tended to prove that she was pregnant and in ill health and had consulted one of the defendants, a local physician, on a number of occasions. He first informed the plaintiff that she had a tumor in the cervix of the uterus, and later after the plaintiff had informed him she was pregnant, stated that her condition was not due to a natural pregnancy, and that it

could show a shadow on a roentgenogram that it be diagnosed a case of abdominal palpation and felt positive without a roentgenogram, that it was a serious case demanding immediate surgical treatment, he wouldn't bother with a roentgenogram.

Not Liable for Undeveloped Roentgen-Ray Static Machine
Stevens v. Higgins (Id.) 518 P. 2

necessary. No roentgen ray examination was made. A few days later operation performed at a hospital revealed the fetus in the uterus and not in the fallopian tube. The incision was closed and in a short time the plaintiff returned to her home. Ultimately she gave birth to a normal, healthy child. After the operation the defendants reported to her that they had discovered a number of tumors

menstruated irregularly and the rest reported no relief and have since returned for a second treatment. The second treatment was successful in all but three instances, and two of these three patients were relieved by a third exposure.

This brief review of cases extending over a period of seven years appears to warrant the conclusion

In the cases of carcinoma of the body of the uterus the total extirpation was effected by the vaginal route in twelve by the abdominal route in seven, and by the Wertheim operation in two cases. Ten patients are permanently cured, two died primarily six died from recurrences, two died from unknown causes two and four years after the operation, and one has disappeared. The total extirpation by the vaginal route resulted in seven

ADOLPH HARTUNG, M.D.

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Page (2)

1012, CIV 433

The web page lists the following information:

ADJUTANT AND PERI-UTERINE CONDITIONS

Blazer J H Autografting of the Ovary Boston
M C S J 10 110004 604

In young women removal of the ovaries is

Most of these cancers were cervical carcinomas, and of these 217 (70.6 per cent) were operable. Two hundred and forty-three cases were operated upon. Permanent results were obtained in eighty-six (35.4 per cent). Two hundred and twenty-four cases were operated on by the abdominal route, results being obtained in seventy-five (33.5 per cent). The vaginal total extirpation was always limited considerably in favor of the abdominal as experience has shown that at most only 10 per cent of the cases remain permanently cured. As modern

removal of the tubes the ovary is wholly or in part left with its normal supports grafted into the uterus, or buried in the broad ligaments or under the parietal peritoneum pain often develops, or changes necessitating a second operation may

becomes active, sometimes enlarged and painful, the symptoms of the menopause subside and menstruation re-appears. Menstruation is always irregular like the re-appearance of menses.

roentgen treated by four (1964) 5 per cent were diseases

from a graft
If menstruation does not occur the removal
of it
that
can be

L. L. CONNELL, M.D.

Enter my card

On the basis of this experience it is believed at the Kieler gynecological clinic that all operable cases should be operated upon and then treated with a full carcinoma dose of the roentgen rays, and those not operable those regarded as difficult

the functioning ovarian stroma is implanted directly over the inner opening of one or both fallopian tubes in the horn or horns of the uterus, conditions

GYNECOLOGY

UTERUS

Cullen, T. S. Uterine Hemorrhage. *J Am M Ass* 1911 March 1902

The various conditions causing uterine hemorrhage fall into two main groups (1) those dependent on recent pregnancy and (2) those independent of recent pregnancy

Uterine hemorrhage dependent on recent pregnancy occurs with (1) premature separation of the placenta, (2) retention of membranes, (3) hydatidiform mole, (4) chorio-epithelioma, (5) tubal pregnancy and (6) pregnancy in one horn of a bicornate uterus

Uterine hemorrhage occurring independently of recent pregnancy is of the following types (1) that due to constitutional conditions (2) that due to

tumors. In the treatment of myomata in women under 35 years of age the average time of exposure is twelve hours. In women beyond this age in whom it is not so important to preserve menstruation, it is twenty-four hours. As a rule 50 mgm of the radium element are employed. This dosage causes permanent cessation of menstruation in 94 per cent of the cases of women over 40 years of age.

uterine tumors and (3) that due to disease of the adnexa
Low and L. Conner, M.D.

Miller, C. J.: Radium Treatment of Myoma of the Uterus and Menopausal Bleeding. Final Results in 183 Cases. *Surg Gynec & Obs* 91 April 1901

Although operative procedures for myoma of the uterus and hemorrhage of menopausal origin are generally successful the author believes that in properly selected cases treatment with radium offers with greater safety results which are equally permanent and greater preservation of physiological function. To prove this contention he reports the final results obtained in 183 cases treated with radium and observed over a period of seven years.

To controvert the inference of over-enthusiasm, he states that about an equal number of cases were treated surgically during the same period of time. The limitations of radiation are clearly recognized in the cases of young women but present definite

limitations. The many myomata in women under 35 years of age are not amenable to radium treatment. The many myomata in women over 40 years of age are amenable to radium treatment.

menorrhagia. One hundred and two of the 107

menopausal hemorrhage such as are commonly classified as cases of chronic metritis, hyperplasia

and it was possible to continue the fluoroscopic examination

1. Less severe syncope in another case

2. An acute inflammatory condition in the left fornix which lasted about two weeks and subsided under palliative treatment

Transuterine insufflation should be employed in every case in which the cause of the sterility is doubtful. It is important that the patency of the tubes be established before any form of treatment is undertaken. The procedure is of especial value in the cases of patients who have had an infection of one fallopian tube and those who have had one tube removed.

Sterile women with fibroid tumors of the uterus should be examined in order to ascertain whether

Some writers state that very little peritoneal reaction results when the jelly-like masses come from the ovary though cystic metastases may be found, on the peritoneum and ovaries are a factor also in the latter type of cases.

An attempt has been made to ascribe the difference in peritoneal reaction to chemical differences

vary from mucin to colloid material.

The author maintains that when both the ovary and the appendix are undergoing pseudo-myoma

L. L. CORRELL, M.D.

EXTERNAL GENITALIA

Strand, C.: Puerperal Atresia of the Vagina. Coitus-Dilatation of the Urethra (Atresia puerperalis dilatatio urethrae a coitu). *Zentralbl. Gynäk.* 92: 21, 1918.

The author reports a case of atresia of the vagina after labor lasting for three days. The adhesion of the vaginal walls was due evidently to necrosis caused by pressure during the labor. Inspection showed that the urethra was greatly dilated (coitus dilatation) and that the opening of the vagina was as small as a pin-head. A severe attack of pain occurred every three weeks. Examination during one of these attacks which lasted six days, revealed swelling of the uterus (hematometra) which was followed by reduction. In spite of the intense pain associated with hiccough, vomiting, and motor disturbances the patient could not be persuaded to submit to operation. Incontinence of the bladder was not present. *VORSCHEIDT (Z)*

MISCELLANEOUS

Novak, E.: Pseudomyoma Peritonei. *B. II Jahrg. Heft 11* 1918, 8.

The peritoneal surface and the body cavity may be locally or generally covered with a gelatinous material. The writer mentions a case of

ruptured chemical examination of the exudate and microscopic examination of the peritoneum are of great value.

The author reports two cases of pseudomyoma

Deenbalske, W. E.: An Attempt to Apply Iodo-therapy in Gynecological Diseases (Ein Versuch die Iodotherapie bei gynäkologischen Erkrankungen anzuwenden). *Neurochirurg. Med.* 930, 1918.

If a galvanic current is made to pass through a solution of potassium iodide the molecules are reduced to ions. During the galvanization of the inflammatory foci of the lower pelvis the iodine ions penetrate the affected structures and act on them therapeutically. One electrode surrounded by a cotton tampon saturated with a 5 per cent solution of potassium iodide is introduced into the vagina. A current of 50 to 100 ma. is passed for twenty minutes. In order to control the penetration of the iodine crystals were done. These have not been done.

1

WAGNER (Z)

Wagner, J.: The Removal of a Foreign Body of Unusual Length After Eight Years. *Internal J. Surg.* 191: 157, 1917.

A woman, aged 36 years, came for relief of excruciating pain in the left buttock which had been

condition arises from retroperitoneal tissues

who became pregnant, one aborted and the other went to full term and bore a normal child. In two cases small cysts developed in the implanted ovarian stroma.

The operation is adapted for women between the

remaining after a subtotal hysterectomy and though menstruation did not recur the phenomena of

artery is preserved. The remaining ovarian stroma is cut so that it will fit into the oval concavity left in the horn of the uterus and is fixed in place with running catgut sutures. The stumps of the round

vagina

Ovarian function is usually established within two months of the operation. H. W. FINK, M.D.

Roeder C. A. The Surgery of Non Hyperplastic Ovarian Cysts. *J. Am. Med. Ass.* 932, 121104, 143

Not infrequently the only remaining ovary be-

The other is then split to the hulum, with care not to injure the vessels. Its cysts are cleanly removed, and the open raw surfaces are sewed to the posterior surface of the broad ligament or the uterus by small continuous fine catgut sutures. A few mattress sutures are placed in the central portions. R. E. CANNON, M.D.

Rondy A. J., and Rosenfeld, S. S. Transuterine Insemination, a Diagnostic Aid in Sterility. *Am. J. Obs. & Gynec.* 932, 11 496

In the two years preceding August 1, 1931 the authors were consulted by 403 patients for the treatment of sterility. Sterility due to the male is on the decrease. The authors believe that the educational campaigns conducted by the medical profession and various public health agencies are just now beginning to produce results. In previous years sterility was due to the male in fully 55 per cent of the cases while today the male is responsible

which finally involve the tubes and render the patient permanently sterile. Dilatation and curet

by the fact that of 300 patients seen by the authors had had cervical operations ranging in number from one to six.

many instances are causes of permanent sterility. In the few instances in which pregnancy followed such procedures the patients would have become pregnant eventually even if they were not operated upon. Operations on the cervical canal without definite knowledge of the condition of the fallopian

cavity

This method of examination must not be used in the presence of acute infections of the vagina or

plications were

1. A severe syncope in a patient who was quite obese. Apparently as soon as the gas lifted the diaphragm, there was interference with the heart action. The patient became cyanosed and the pulse barely perceptible. She rapidly rallied, however.

GENITO URINARY SURGERY

ADRENAL, KIDNEY AND URETER

Leopold, S. S. and Behrend, M.: Nephrotomy and Decapsulation for Anuria in a Case of Single Kidney; Recovery. *Surg. Gynec. & Obst.* 1922 XXXIV 677

References in medical literature to nephrotomy

differential functional test is generally of the greatest value. Diminution of the output of phenolul-

The patient was a white male, 37 years of age. A purulent urethritis acquired in some unknown manner at the age 3 years and neglected resulted

wide structure of the lower ureter and (3) chronic renal tuberculosis.

Pathologic examination shows kidneys which are small, firm, and contracted with outer surfaces which are smooth and rounded and devoid of any scarring, as in chronic nephritis. One-half of the kidney may be involved more than the other. The fibrosis and destruction of the kidney substance makes differentiation between the cortex and medulla very difficult, but as a rule the former is thinned while the latter is thickened and fibrous. Microscopically the tubules are atrophic and their cells have a compressed appearance. The ureters are thickened and dilated, especially in their upper third.

voided in one hundred hours. The longest period

the normal urinary output and recovery

EDWARD F. HISS, M.D.

Branach, W. F. Atrophic Pyelonephritis. *J. Urol.* 1921 VII 217

The author reports twenty-eight cases of atrophic pyelonephritis observed at the Mayo Clinic. In

The condition is not the end result of the usual pyelonephritis but is probably due to a septic infarct.

The operative results in these cases have been very satisfactory. Improvement or cessation of the vesical symptoms and improvement in the general condition have been obtained in practically every instance. GORMAN S. FORTIN, M.D.

Lindstrom, L. J. Studies of Malignant Tumors of the Kidney (Studies over analysen Nieren-tumoren). *Ark. f. path. anat. & Urol. Helsingfors* 9. 1922 II, 209.

The author reports the histories and the results of a macroscopic and microscopic study of forty malignant tumors of the kidney which were seen during a period of twenty-three years (1897 to 1919) in the surgical clinic of the University of Helsingfors.

In the anatomical division of the article the mixed tumors (five cases) are discussed first. The origin of these growths the author believes is to be sought in the relatively highly differentiated cells, namely in the anlage of the permanent kidney. To explain their appearance it is not necessary to assume an abnormal cell connection as cells of the metanephron may have been arrested in their development by local disturbances, proliferating pathologically later.

severe and usually not progressive. The pain is unilateral and more severe and often is accompanied by evidence of acute renal infection. Pain is the most common symptom and may occur as short periods of dull, unilateral ache or in acute attacks. Frequent micturition and dysuria are common symptoms, but may disappear later in the course of the disease. Hematuria occasionally occurs. In some cases there may be attacks of chills and fever. As a rule moderate amounts of pus are found in the urine. Possible foci of infection in the teeth and tonsils are usually present.

present for the past week. For the last year she had noticed a swelling in this region which was

left ischio-rectal fossa with a small opening about 1 in. to the left of the anal margin. The cavity was not probed, but a rectal examination failed to reveal any fistula.

ful

The patient stated that eight years previously when one of her menstrual periods was overdue she went to her physician who did something, but she does not know what. Her menses were always regular after that until three years ago when they became very irregular the flow was almost constant, and there was very severe pain in the left

latter extended upward toward the abdominal cavity. The rectum was thoroughly explored, but there was no sign of any opening or connection between it and the fistulous tract. A vaginal examination disclosed a mass of scar tissue re-

several months when she was free from symptoms. Examination revealed a discharging sinus in the

vagina was found but no opening; only scar tissue was present.

The usual operative and postoperative procedures were followed by successful recovery.
EDWARD L. CORRELL, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY AND URETER

Leopold, S. S. and Behrend M.: Nephrotomy and Decapsulation for Anemia in a Case of Single Kidney; Recovery. *Surg. Gynec. & Obst.* 1911 xxxi 677

References in medical literature to nephrotomy and decapsulation in cases of single kidney are few. The author believes the case he reports is unique in that right nephrectomy had been performed four years prior to nephrotomy and decapsulation on the left kidney.

The patient was a white male 17 years of age. A purulent urethritis acquired in some unknown manner at the age 3 years and neglected resulted

side and increased on the healthy side. The urine from the affected side may be turbid but the number of pus cells in the urine catheterized from the affected kidney is usually only moderate. The differential functional test is generally of the greatest value. Diminution of the output of phenolsul-

side structure of the lower ureter and (3) chronic renal tuberculosis.

Pathologic examination shows kidneys which are small, firm, and contracted with outer surfaces which are smooth and rounded and devoid of any scarring, as in chronic nephritis. One-half of the kidney may be involved more than the other. The fibrosis and destruction of the kidney substance make differentiation between the cortex and medulla very difficult, but as a rule the former is thinned while the latter is thickened and fibrous. Microscopically the tubules are atrophic and their cells have a compressed appearance. The ureters are thickened and dilated, especially in their upper third.

The condition is not the end-result of the usual pyelonephritis, but is probably due to a septic infarct.

The operative results in these cases have been very satisfactory. Improvement or cessation of the vesical symptoms and improvement in the general condition have been obtained in practically every instance.

GORDON S. FORD, M.D.

BRUNSCH, W. F. Atrophic Pyelonephritis. *J. Urol.* 19 vii 247

The author reports twenty-eight cases of atrophic pyelonephritis observed at the Mayo Clinic. In

severe and usually not progressive. The pain is unilateral and more severe and often accompanied by evidence of acute renal infection. Pain is the most common symptom and may occur as short periods of dull, unilateral ache or in acute attacks. Frequent micturition and dysuria are common symptoms, but may disappear later in the course of the disease. Hematuria occasionally occurs. In some cases there may be attacks of chills and fever. As a rule moderate amounts of pus are found in the urine. Possible foci of infection in the teeth and tonsils are usually present.

Cystoscopic data are of great value in establishing a correct diagnosis. The bladder shows very little change. In most cases the apertures of ureters from the ureteral openings are diminished on the affected

Lindstrom, L. J. Studies of Malignant Tumors of the Kidney (Studien ueber maligne Nierentumoren). *Ark. f. path. Anat. & Univ. Histo-log.* 1911 xxi 209

The author reports the histories and the results of a macroscopic and microscopic study of forty malignant tumors of the kidney which were seen during a period of twenty-three years (1897 to 1920) in the surgical clinic of the University of Helsinki.

In the anatomical division of the article the mixed tumors (five cases) are discussed first. The origin of these growths the author believes is to be sought in the relatively highly differentiated cells, namely in the anlage of the permanent kidney. To explain their appearance it is not necessary to assume an abnormal cell connection as cells of the metanephron may have been attracted in their development by local disturbances proliferating pathologically later.

London L. H., and Alter N. M. Carcinomatous Papilloma of the Renal Pelvis. *Ann Surg* 1922 LXV 685.

In the case reported the greater portion of the

organs and their tendency to form metastases in the other kidney and the bladder. Whether this metastasis occurs by way of the urinary tract or

BLADDER, URETHRA, AND PENIS

Gerrigity J. T.: Ephlocterostomy per Urethram: A Simple and Safe Procedure for the Cure of Contracture of the Urethral Orifice. *J Urol* 1922, VII, 347

The "prostateless" prostate of the earlier French literature or the median bar of more

posteriorly

Because of the sloughing and hemorrhage which not infrequently follow the modified Botini operation of Chetwood and the use of the Young

tumor, varicose veins on the abdomen and leg

cystoscopy and requires only a few minutes. The urine is merely tinged with blood and a retention catheter is unnecessary. CLAUDE D. PICKRELL, M.D.

Watson, E. M. The Structural Basis for Congenital Vah. Formation in the Posterior Urethra. *J Urol* 9 2, VII, 37

On the basis of a study of the posterior urethra

free from recurrence for three years

VON REDWITZ (Z).

Grenhan, M.: The So-Called Callosus Tumors of the Male Urethra (Zur Frage der sogenannten Callosgeschwülste der männlichen Harnröhre) *Deutsche Zeitschr f Chir* 1922 cliv 254

The author describes the case of a 48-year-old man who came to operation for the removal of a nodular tumor of the perineum 4 to 6 cm long and 3 to 4 cm broad. The history revealed a trauma followed by structure at the age of 19, which pre-

thelial epithelium.

The author classifies such growths with inflammatory tumors of the abdominal wall, as proposed by Schloffer. He advises their radical extirpation, if it is at all possible, because they are very difficult

safety

DECE 22.

GENITAL ORGANS

Broders, A. C. Epithelioma of the Genito-Urinary Organs, *Ann Surg* 1923 lxxv 574

While the term cancer is applied loosely to all malignant neoplasms that arise from the prostates & epithelia, the kinds of cancer differ greatly in their degree of malignancy. Broders classifies epitheliomata into four groups according to whether the undifferentiated epithelia constitute one-fourth, one-half, three-fourths, or all of them. He reports 473 cases of general epitheliomas observed in the Mayo Clinic and concludes that these tumors occur three times as often in females as in males.

The average age of the patients was 50.04 years. Ninety-five and ninety-eight hundredths per cent had been married, 33.85 per cent were farmers, and 11.83 per cent had a family history of malignancy. Of the women 90.77 per cent had been pregnant, and 41.76 per cent of those with cervical lesions were past the menopause. Of the patients with lesions of the cervix, bladder and urethra 86.01 per cent gave a history of hemorrhage. The average duration of the lesion in all cases was 1.35 years.

Of the genito-urinary epitheliomata, 56.87 per cent were located in the cervix and 4.36 per cent in the bladder. Of the 70.76 per cent of the operable cases of epithelioma of the labrum and penis metas-

deaths and deaths due to undetermined causes 93.27 per cent of the deaths resulted from epithelioma on an average of 1.34 years after the last operation. All of the patients with small lesions of the cervix (under 2 cm) and 80 per cent of those with small lesions of the bladder obtained good results. All of the patients with large lesions of the penis (over 4 cm) obtained poor results.

Of the patients with lesions of the labia with metastases 54.28 per cent had good results. In all of the cases of lesions of the penis with metastases the results were poor. One of five patients with lesions of the cervix obtained good results, while 80 per cent lived an average of 12.07 years. The results were good in 48.56 per cent of the cases of lesions of the bladder and 1.64 per cent of those of lesions of the labium. Of the patients with lesions of the penis 41.16 per cent were free from the disease for 6.95 years, and of those with lesions of the vagina 33.33 per cent have been free from the disease for 3.35 years.

Considering all the genito-urinary organs relative to mortality and excluding cases of postoperative deaths and deaths from unknown causes, epithelioma was the cause of death in 33.33 per cent of the cases in Grade 1, in 81.03 per cent of those of Grade 2, in 66.33 per cent of those of Grade 3, and in 9.27 per cent of those of Grade 4. The total good results were 83.33 per cent in Grade 1, 45.90 per cent in Grade 2, 25 per cent in Grade 3, and 12.10 per cent in Grade 4. Of the entire number of patients, 23.05 per cent were alive with good results after 8.38 years, 5.03 per cent were alive with good results after 6.34 years, and 28.13 per cent obtained good results. B. F. ROSS, M.D.

Gerrahy, J. T. A New Method of Perineal Prostatectomy Which Insures More Perfect Functional Results: A Preliminary Report. *J Urol* 9:2 vol. 339

In the suprapubic prostatectomy the manipulations are within the rectal canal.

and occasionally permanent loss of control may result, particularly in cases in which the prostate is large.

An operation used by the author in ten cases exposes the prostate without injury to the membranous urethra and external sphincter and corrects the occasional faulty control. The patient is placed in the exaggerated perineal lithotomy

59 per cent of patients operated upon who were traced, only 1.36 per cent were living 8.53 years after the operation. Excluding the postoperative

ejaculatory ducts are preserved and maximum exposure of the lobes is obtained. Enucleation is effected with the blunt dissector and the finger, with traction to bring forward the suburethral and intravesical lobes. When hemostasis has been obtained a large single tube is placed in the bladder and long strips of gauze are packed around it well

subcuticular chronic catgut and the tube is sutured to the skin edge with heavy silk.

The technique described simplifies the operation. The membranous urethra is not exposed as it is in Young's method, and the intrinsic and extrinsic musculature and the nerves are not disturbed.

C. D. FICKES, M.D.

SURGERY OF THE NOSE THROAT AND MOUTH

NOSE

Joseph J.: Total and Partial Rhinoplasty and

result. In order to prevent bruising of the parts

Here again, an effort is made to insure primary

support unless it shrinks

In the presence of a defect the adjacent portions of the nose must be replaced before the true nasal plastic is done for example, by the formation of

any blood that may escape through or around the

cedure the transplant is maintained in its position by a gauze dressing corresponding to the defect which is held over the defect sensely and with slight pressure and sutured to the edges of the wound

Korvas (2)

Dalbey V. The Moure Operation for Removal of Large Growths and Foreign Bodies from the Antrum. *Surg Gynec & Obst* 9: 230-231 1907

The Moure operation is indicated especially

inspection of the interior of the nose and the ethmoid. When this area has been marked out by the chief and broken out with suitable forceps,

the eye is covered with a pad wrung dry from a bichloride solution. Towels are draped over the head and neck in the usual way to cover all but the part to be attacked. A curved incision is made parallel with, and $\frac{3}{8}$ in. below the infra-orbital margin, beginning below the inner canthus. From this point it is carried straight down along the juncture of the nasal ala and the face to the edge of the nasolabial juncture. The bleeding must be controlled as the incision is lengthened, so that the blood will not completely obscure the field.

After the wound has been packed with gauze impregnated with Dakin's solution it is sewed

As a rule gentle, warm saline irrigation two or three times daily is all the after-care that is required in benign cases. In the presence of malignancy the wound must be left open, treated as any other open wound, and the use of the X-ray and radium persisted in. Except in such cases there is no depression or deformity in the face as fact, when primary union takes place, the scar is hardly visible.

O. M. ROY, M.D.

abundance of delicate capillaries and absence of

bone and when the erosion of large amounts is done early in life the growth of outlying parts of

THROAT

Withers, S. On the Use of Radium t. Effect on Atrophy of Pharyngeal Lymphoid Tissues—A Topical Review. *Laryngoscope*, 1922, LVII, 61

Tonsillectomy should be regarded as a serious operation. As in the majority of cases patients undergo the operation with little disturbance and

the tonsil is not new and is founded on sound biological principles. Suitable means of application have been devised. Radium is preferable to the X-rays in the treatment of hypertrophied tonsils as

may occur and the convalescence may be slow.

In general the structural characteristics which

DAVID R. ROY, M.D.

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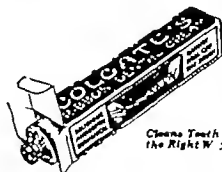
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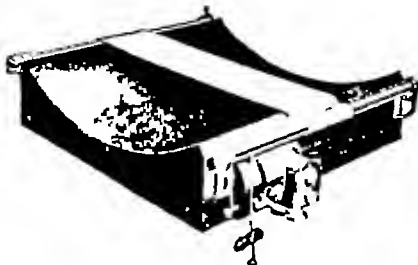
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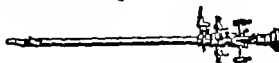
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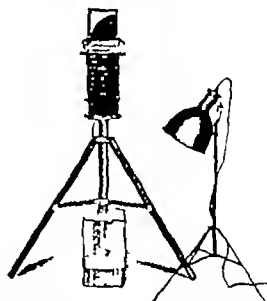
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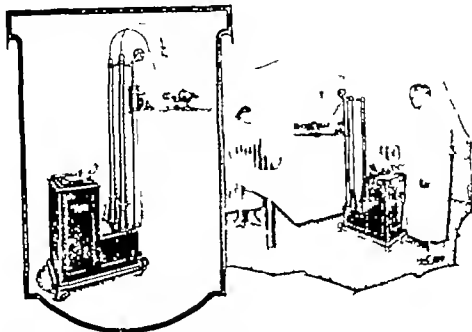
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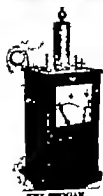
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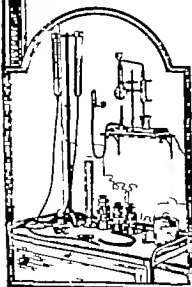
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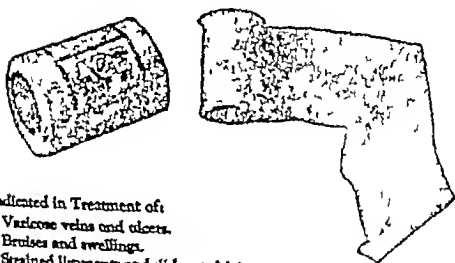
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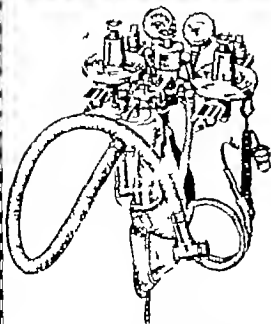


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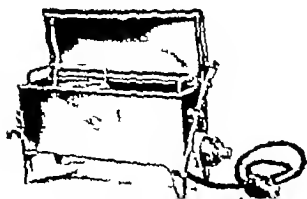


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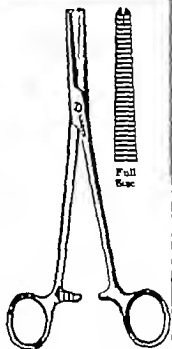
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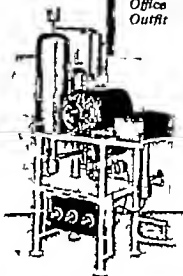
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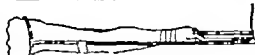
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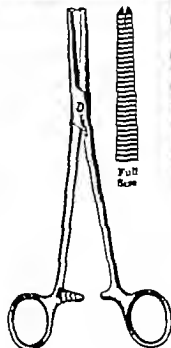
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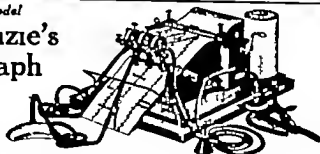
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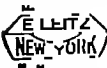
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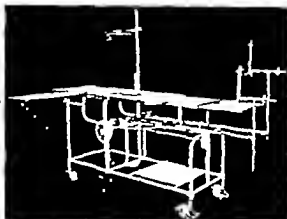
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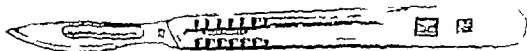
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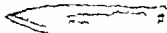
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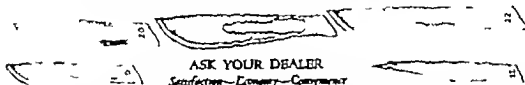
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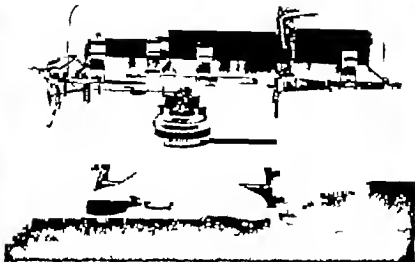
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OHIO Mobile Pedestal Operating Table No. 2

Horizontal, With All Accessories

Surgeons generally will appreciate an operating table of full 72 inch length. This is table length and does not include the length of the head rest.

A strong, wide spread base will also be appreciated, as this obviates entirely the liability of tipping.

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These new positions not only relieve the surgeon of much of the physical strain of

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A full investigation of the merits of this unusual table should be made by every surgeon.

The Ohio No. 2 is mounted on Cast Porcelain Base and equipped with special combination ball-bearing and cone-bearing casters. Top of Polished Monel Metal which will not rust or corrode. Table elevated to 42" by hydraulic lift. All controls at head of table in easy reach of anesthetist. Table rotated to any kind of vision. Complete with all attachments. Write for catalog.

(Picture Showing one Above Table)

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Claustro-Thermal Catgut Aseptic

Chances of accidental contamination.¹ Sterilization by this positive method is made feasible by use of the tool as the tubing fluid, instead of the unstable chloroform.²

No other mode of sterilization so completely fulfills the exacting requirements for the production of ideal sutures as does the Claustro-Thermal method. It preserves the natural physical characteristics of the strands, while the destruction of all bacterial life is absolutely assured.

Claustro-Thermal catgut is aseptic though not germicidal. Not being impregnated with any bactericidal substance, it is inert to the tissues, exerting no inhibitive action.

These sutures are boilable. The tubes even may be autoclaved up to 30 pounds pressure for sterilizing their exterior preliminary to use. The heat sterilization procedure is described on the following page.

VARIETIES OF CLAUSTRO-THERMAL CATGUT

Each Tube Contains A Approximately Sixty Inches

| | |
|-----------------------|---------|
| Plain Catgut | No. 105 |
| 10-Day Chromic Catgut | No. 125 |
| 20-Day Chromic Catgut | No. 145 |
| 40-Day Chromic Catgut | No. 155 |

SIZES 000 00 0 1 2 3 4

In packages of twelve tubes of kind and size

Last Price per dozen tubes (in U. S. A.) \$2

A wholesale discount of 25% is allowed on one gross or more (25¢ net per gross) carriage paid



Kalmerid catgut embedded in agar infected with *Staphylococcus pyogenes aureus*



Infected catgut embedded in thermus medium. Shows the presence of bacteria

Kalmerid Catgut Antiseptic

KALMERID CATGUT is an improved germicidal suture superseding iodized catgut.¹ It is not only sterile, but, being impregnated with potassium-mercuric-iodide—a double iodine compound—the sutures exert a local bactericidal action in the tissues. It differs from the Claustro-Thermal catgut only in this respect.

The serious disadvantages of iodized catgut—decoloration, irritation, and impaired tensile strength—have been overcome through the use of potassium-mercuric-iodide instead of iodine. Unlike iodine, it does not break down under the influence of light or heat, it is chemically stable and it is neither toxic nor irritating to the tissues. It interferes in no way with the absorption of the sutures, and is not precipitated by the proteins of the body fluids.²

These sutures are boilable. The tubes even may be autoclaved up to 30 pounds pressure for sterilizing their exterior preliminary to use. The heat sterilization procedure is described on the following page.

VARIETIES OF KALMERID CATGUT

Each Tube Contains A Approximately Sixty Inches

| | | |
|----------------|----------------|----------|
| Plain Catgut | Boilable Grade | No. 1205 |
| 10-Day Chromic | Boilable Grade | No. 1225 |
| 20-Day Chromic | Boilable Grade | No. 1245 |
| 40-Day Chromic | Boilable Grade | No. 1265 |

SIZES 000 00 0 1 2 3 4

In packages of twelve tubes of kind and size

Last Price per dozen tubes (in U. S. A.) \$3

A wholesale discount of 25% is allowed on one gross or more (25¢ net per gross) carriage paid

Kalmerid catgut is made also in an extra flexible grade which is non-boilable, and which is described on the following page.

GERMICIDAL EFFICIENCY AS COMPARED WITH IODIZED CATGUT

The marked inhibitory power of Kalmerid catgut, as compared with iodized catgut, is strikingly shown in these reproductions of culture plates. The higher areas about the embedded sutures represent zones of no bacterial growth while the darker portions are masses of *Staphylococcus aureus*. It is evident that Kalmerid sutures exert in the tissues far greater bactericidal action than do the usual iodized sutures.

See Advertisement on Page One

Method of Sterilisation

BOTH Cassette-Thermal and the boilable grade of Kalmerid catgut, described on preceding page, are subjected to the same sterilising procedure: the sealed tubes are submerged in a bath of camol and there exposed for five hours to the rigorous temperature of 163°C . (325°F). It is obvious that sterility is absolutely assured. Rigid bacteriological control is maintained.



Kalmerid Catgut—(Non-Boilable Grade) Extra Flexible

THE NON-BOILABLE grade of Kalmerid catgut differs from the boilable variety described on the preceding page in that it possesses extreme flexibility—a characteristic sometimes desired by surgeons accustomed to the use of iodised catgut. It is impregnated with potassium-mercuric-iodide, and the sutures exert a local bactericidal action on the tissues.

Potassium-mercuric-iodide is the double salt of iodine and mercury the chemical formula of which is HgI_2KI . Through its use the serious disadvantages of iodised catgut—deterioration, irritation, and impaired tensile strength—have been overcome. It is one of the most active germicides known, exerting a killing action on bacteria about ten times greater than that of iodine. Physiologically it is bland and is entirely compatible with the tissues, not being precipitated by the proteins of the body fluids.

VARIETIES OF THE NON-BOILABLE GRADE OF KALMERID CATGUT

Each Tube Contains A practically Sterile Suture

| | | |
|----------------|--------------------|---------|
| Plain Catgut | Non-Boilable Grade | No 1408 |
| 10-Day Chromic | Non-Boilable Grade | No 1425 |
| 20-Day Chromic | Non-Boilable Grade | No 1445 |
| 40-Day Chromic | Non-Boilable Grade | No 1495 |

Sizes 000 00 0 1 2 3 4

In packages of twelve tubes of 12 in. and 18 in.

List Price per dozen tubes (in U.S.A.) \$3

A wholesale discount of 20% is allowed on one gross or more (\$37 net per gross) carriage paid.

Kalmerid Kangaroo Tendons Boilable and Non-Boilable

KALMERID KANGAROO TENDONS are the sutures par excellence for these procedures in which post-operative tension is excessive, or long continued apposition necessary, such as in hernioplasty and in tendon and bone suturing. They are not only sterile, but, in addition, are impregnated with potassium-mercuric-iodide as in Kalmerid catgut, which enables them to exert a local bactericidal action on the tissues.

They are genuine kangaroo tendons: they are smooth, straight, of uniform contour and possess a tensile strength about twice that of catgut.

The tendons are chromatized, and so accurately in the process regulated that each size will maintain apposition in fascia or in tendon for approximately thirty days.

Kalmerid kangaroo tendons are prepared in two grades—boilable and non-boilable. The latter are extremely pliable.

VARIETIES AND SIZES

Non-Boilable are Product No. 270

The Boilable are Product No. 280

Each Tube Contains One Tendon
Lengths Vary From 12 to 20 inches

STANDARD SIZES 0 2 4 6 8

Formerly termed extra fine, fine, medium, coarse and extra coarse, respectively

In packages of twelve tubes of 12 in. and 20 in.

List Price per dozen tubes (in U.S.A.) \$3

A wholesale discount of 20% is allowed on one gross or more (\$37 net per gross) carriage paid.

THE PERMEATION OF KALMERID SUTURES BY POTASSIUM MERCURIC-IODIDE

The higher stained specimens in cross section of strand of plain Kalmerid catgut, highly magnified.

The darker stained specimens in cross section of the same strand treated with potassium iodide to produce the



General Qualities

accuracy of sizes, flexibility and absolute sterility. They are unaffected by age or light, or by extremes of climatic temperatures.

Unabsorbable Sutures

Heat Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity in Each Tube | Standard Price |
|--------------------------------------|-----------------------------------|----------------|
| 850 Celluloid-Linen Thread 60 Inches | 000, 00, 0 | 75 |

Last Price per dozen tubes (m U. S. A.) \$3
Wholesale discount of 25% allowed on gross or more cartons paid

Short Length Sutures

Heat Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity in Each Tube | Standard Price |
|---|-----------------------------------|----------------|
| 802 Plain Catgut 20 In. | 00, 0, 1, 2, 3 | |
| 812 10-Day Chromic Catgut 20 In. | 00, 0, 1, 2, 3 | |
| 822 20-Day Chromic Catgut 20 In. | 00, 0, 1, 2, 3 | |
| 832 Horsehair 2 1/2-In. Sutures | 00 | |
| 872 Plain Silk Worm Gut 2 1/4-In. Sutures | 0 | |
| 882 White Twisted Silk 20 In. | 000, 0, 2 | |

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List Price per dozen tubes (m U. S. A.) \$1.08
Wholesale discount of 25% allowed on gross or more cartons paid

Sutures With Needles

Heat Sterilized After Closure of Tubes—Boilable

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|---|-----------------------------------|----------------|
| 904 Plain Catgut 20 In. | 00, 0, 1, 2, 3 | |
| 914 10-Day Chromic Catgut 20 In. | 00, 0, 1, 2, 3 | |
| 924 20-Day Chromic Catgut 20 In. | 00, 0, 1, 2, 3 | |
| 934 Horsehair 2 1/2-In. Sutures | 00 | |
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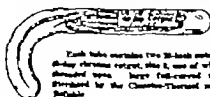


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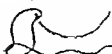


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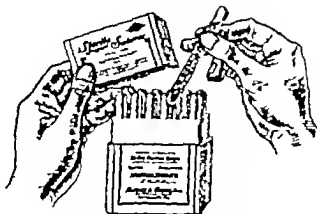
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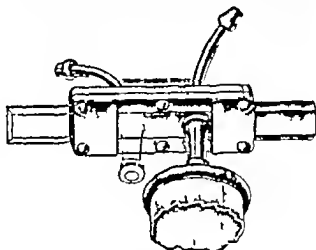
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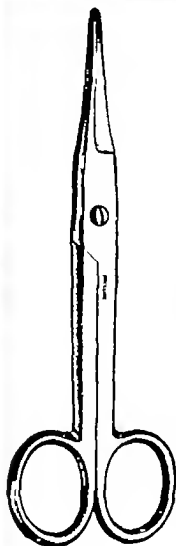
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TRAUMATIC ASPHYXIA

By THOMAS M. GREEN, M.D., F.A.C.S., WILKINSON, NORTH CAROLINA

TRAUMATIC asphyxia is perhaps one of the most remarkable conditions we are ever called upon to witness, especially with regard to the appearance of the victim and yet the pathology is rather simple. Most cases recovering in spite of other injuries which accompany it. Indeed the injuries which accompany it are frequently more severe than the traumatic asphyxia.

This condition is brought about by compression of the chest and abdomen over an extended period of time causing a suspension of the respiratory function. Judging from the literature on the subject it seems a rather

Sometimes the discoloration is shown on the arms. Subconjunctival hemorrhages are common to all cases while hemorrhages from the nose, mouth, and ears frequently occur. Other common points of discoloration are the pleura, pericardium and abdominal viscera. These latter -

ecchymoses;

blood is dis-

colored due to the exclusion of atmospheric oxygen. Other symptoms frequently accompanying the condition are unconsciousness, brief or prolonged respiratory or cardiac depression, pulmonary engorgement associated with râles and bloody expectorations. Convulsions are not uncommon and occur not only with resumption of consciousness but during several days following. Despard thinks they cannot be explained by the engorgement of the cerebral vessels, nor by toxemia arising from the asphyxiated state. He believes that they are due to respiratory interference from injury to the phrenic nerve.

We must remember that in this type of asphyxiation we are not only dealing with the withholding of air from the lungs but that the venous blood in the large veins of the thorax, neck, and head has been forced backward into the capillaries of the skin by the compression of the chest and abdomen, thus producing an intense discoloration of the skin. Perthes explains the sharp limitation of this discoloration by lack of competent valves in the veins of the head

Tardieu and then by Hardy who first observed the condition in victims of panics who were crushed in the efforts of the crowd to leave a building or a very crowded area. The reported case exhibited certain striking and more or less constant characteristics, i.e. the appearance of the skin, head, face and neck differing only in degree. The color of the skin becomes a lark red to purple and the discoloration may be discrete or confluent, extending as far down as the third rib on the left. On the posterior surface the

the discoloration extends down the trapezius triangle

(There are no valves in the innominate and internal jugular veins, except a pair where the jugular enters the innominate. These are irregular and incompetent. There are two pairs in the external jugular one at its junction with the subclavian and the other just above the clavicle. Both sets of valves are incompetent.) Huerter in explaining this discoloration thought that it was due either (1) to the extreme distention and rupture of the vessels of the skin of the face and neck from the sudden upward pressure or (2) that the pressure on the abdominal and thoracic sympathetic nerves produces vasomotor paralysis, which results in the distention of the vessels with blood. Perthes accepts Huerter's first explanation, but believes that the capillaries are actually ruptured and allow the blood to be extravasated into surrounding tissues. Barrell and Crandon believed the condition to be due to vasomotor paralysis, accepting the second explanation of Huerter. It remains for Beach and Cobb to show conclusively in their exhaustive treatise that it was not an extravasation of the blood outside of the vessels but that the intense pressure from the blow had forced the venous blood upward against the incompetent valves and backward into the capillaries of the face and neck. This they proved beyond question by removing sections of skin for microscopic study. The discoloration is inclined to blanch a little on pressure and clear up rapidly without going through the various stages of discoloration as shown where blood is extravasated into the tissues.

The treatment of the condition consists in the use of stimulants applications of oxygen and artificial respiration. Rappanner finds that most cases that recover consciousness from the original injury go on to complete recovery. Many show the so-called con-

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eyes nose mouth, and rectum. Respiratory func

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patches of the macula have been reported. Parker reported optic atrophy produced by traumatic asphyxia. In his analysis of a number of cases he finds the pupils often fail to respond to light. Long also notes this.

Beaton presents case of a man of 24 years, who was beat down and forward by pit cage.
Ryerson describes case of a boy who was injured by being compressed between the spokes and wheels of a wheel.
Both cases the case of male of 37 whose abdomen and thorax are crushed between two cars. This man died the twenty-seventh day after the injury.
Fitzinger reports the case of young man who was tramped on by a mob.

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HYPERPLASIA OF THE RUDIMENTARY LYMPH NODES OF THE PROSTATE¹

By NOBUYUKI FUKASE, M.D. HANNOVER, JAPAN
Graduate Student in Pathology, University of Michigan

VERY little has been written upon the normal anatomy of the lymphatic system of the human prostate and nothing about the pathological conditions of this system. Most of the statements made

detail by Sappey (1854) as a widely distributed network of vessels throughout the gland converging into two collecting ducts on each lateral surface of the prostate, the upper and smaller trunks running to the obturator lymph nodes while the lower and larger terminate in the internal iliac nodes. According to Cantrix the lymphatic network is too abundant in the middle portion of the prostate moderately well developed in the base and scantily developed in the apex. The endothelial cells of these lymphatic vessels are lozenge or polygonal in shape and contain numerous fine granulations in their cytoplasm.

Potter and Cunio 1904 accepting the work of Cunio and Marville, describe the prostatic lymphatics as arising in fine capil-

laries arranged in the form of a network around each glandular acinus. From this periacinous network there run larger vessels toward the periphery of the gland where they form a periprostatic network from which the collectors start. These are symmetrically arranged on each side of the gland and run in four different directions. A primary trunk starts from the posterior surface of the prostate and runs on to the bladder between the vasa deferentia, ultimately terminating in the middle gland of the external iliac group. This ascending channel frequently consists of two trunks which then terminate in the middle and superior glands of the middle chain. A second collector arising from the posterior surface of the prostate accompanies the prostatic artery running upward outward and backward terminating in one of the middle glands of the hypogastric group. In the neighborhood of the prostatic origin of this trunk two or three small glandular nodules are almost constantly present. Two or three other collecting trunks also start from the posterior surface of the gland, and run downward and backward and ascend on the anterior surface of the

sacrum, the shorter and more external ending in the lateral sacral glands internal to the second sacral foramina, while the larger and more internal pass as far as the promontory to terminate in the glands situated there. From the anterior surface of the prostate a descending trunk runs to the pelvic floor ultimately terminating in one of the hypogastric glands.

As to the existence of rudimentary lymph nodes associated with the lymphatic system within the prostate there are very few observations in the literature. Walker (1900) studied both animal and human prostates, and determined the existence of lymph nodes within the gland. He found them generally situated near the lateral surfaces, in groups of two or three nodes consisting of closely packed lymphoid cells surrounded by a thin capsule of connective-tissue fibers that extend into the peripheral layer of cells, but not deeper. In the central portion of these lymphoid collections, there is an extremely fine reticular network. Throughout the gland along the lymphatic vessels, there are scattered small groups of lymphocytes representing more rudimentary lymph nodes.

Weisk (1902) studied an island of lymphoid tissue that Waldeyer had found in a dog's prostate regarding it as a pathological condition although no other evidences of disease were present. In 1903 he reported the occurrence of lymphoid nodes in two human prostates, located just beneath the epithelium of the acini and concluded that they were

very rarely found as dense groups of lymphocytes beneath the mucosa of the prostatic urethra.

Many authors, however still do not recognize either the existence or significance of such intraprostatic lymph nodes. Pomeroy Cunné and Martelle do not mention them. Deaver (1905) describes Walker's prostatic lymph node and states that the latter's observations do not appear to have been confirmed by other investigators, who regard

such lymphoid collections within the substance of the prostate as inflammatory in origin.

Wilson (1911) says that "islands of lymphoid tissue are frequently observed in the prostate. Weisk who has carefully studied these, notes their analogy to those found by Waldeyer in the dog's prostate. He mentions the possibility that these structures may be pathological but believes, that on account of the human presence of similar lymph follicles in other glands they may be considered physiological."

During my studies of pathological conditions of the prostate I have frequently found lymphatic nodes in the glandular portions of the prostate in both normal and pathological conditions of this organ. In some instances a marked hyperplasia with formation of germ centers was observed. At the suggestion of Professor Warthin, who had made similar observations, in his diagnostic examinations of prostatic material, and because of the paucity of recorded observations in the literature of such conditions affecting the lymph nodes of the prostate and the general vagueness as to their occurrence and significance I made a study of a series of 222

the occurrence of hyperplasia of the rudimentary lymph nodes within the glandular portions of the prostate.

Preparation. The material was fixed in ten per cent formalin solution and imbedded in paraffin. Blocks were taken from all parts of the gland usually eight to ten in number and representing all lobes. Sections were made from these at different levels, and in some instances serial sections. The sections were stained with hemalum and eosin, Van Gieson's stain, Weigert's elastic-fiber stain, Mallory's reticulum stain, and Unna's method for the staining of collagen.

The normal rudimentary lymph nodes of the prostate, as found in all normal adult human cases, consist of small aggregations of small lymphocytes slightly more crowded at the periphery than at the center but not possessing any well-defined germ-center. The

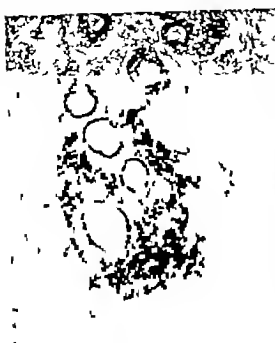


Fig. 1. Prostate from boy 4 years old, thymic-lymphatic constitution, death from tetanus. Hyperplastic rudimentary lymph nodes are present around the prostatic ducts.



Fig. 2. Hyperplastic rudimentary lymph node in prostate of man 50 years old, with symptoms of difficult micturition, partial retention, and cloudy urine for one year. Prostate showed chronic hyperplastic inflammation with marked hyperplasia of rudimentary lymph nodes.

periphery is fairly distinct from the surrounding tissue but without any definite capsule and irregular in outline. The collections of lymphocytes lie in a fine reticulum, and are disposed about a small terminal blood vessel. They are usually located just beneath the epithelium of the larger glandular acini and of the ducts. They are not large enough to be seen with the naked eye either in the unfixed prostate or in the stained sections.

The hyperplastic nodes vary in size from 0.15 millimeter to 0.5 millimeter or larger in diameter so that they can be seen with the naked eye in stained sections. They are usually a little larger than the solitary nodes of the intestine. They are usually round or oval in shape and are rather clearly distinct from the surrounding tissue. There is a definite formation of fine reticular network with lymph and blood vessels. The larger ones may be surrounded by dilated blood vessels and lymph vessels, especially the latter which are generally filled with lympho-

cytes. Well-defined germ centers may be found in the largest ones. Stellate or oval lymphoblasts occur in the centers, but the number of cells in the central portion is scant as compared with the germ centers of the solitary follicles of the gastro-intestinal tract.

The number of hyperplastic nodes in any given prostate varies much; some sections may contain several while the search of many sections may fail to reveal any. They usually increase in number toward the outlets of the excretory ducts and the urethra. They occur also in the fibromuscular capsule of the organ.

The hyperplastic nodes contain few or no elastic fibers. These usually disappear at the periphery of the node as do the muscle and connective tissue fibers. When the node is situated near a glandular acinus, there is usually a thin layer of muscular connective tissue between it and the epithelium of the acinus.

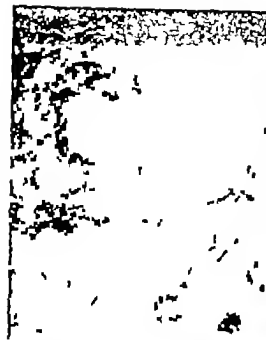


FIG. 3. Section from same prostate as in Figure 1, showing hyperplastic lymph follicle with well-developed germinal centers.



FIG. 4. Hyperplastic rudimentary lymph follicle in glandular portion of prostate showing marked glandular hyperplasia and cystic dilatation of glands. Patient 50 years old had had prostatic symptoms for 5 years.

From inflammatory infiltrations the rudimentary lymph nodes are easily distinguished by the uniform character of the cells, their arrangement, the demonstration of the endothelium of the lymphatic vessels and the fibers of the reticulum. When there is a germinal center in the node there is, of course, no difficulty.

In an examination of 222 prostates hyperplasia of the rudimentary lymph nodes was found in 31 cases, as follows:

| Pathological condition | Number of cases | Hyperplasia of lymph nodes |
|----------------------------------|-----------------|----------------------------|
| Lymphatic congestion | | 1 |
| Lymphoid tonsils | | 1 |
| 31 elements | | 1 |
| Normal prostate | 45 | |
| Acute prostatitis | 43 | 1 |
| Chronic hyperplastic prostatitis | 57 | 18 |
| Atrophic prostate | 23 | 1 |
| T. bacterioides of prostate | | 1 |
| Syphilis of prostate | | 0 |
| Bacillary neoplasia (adenomas) | 6 | |
| Secondary sarcoma | | 1 |
| Carcinoma | 4 | 0 |
| Total | 9 | 31 |

Well-developed germ centers of large size were found in five cases, in one case each of hyperplastic prostatitis, atrophy of prostate lymphatic constitution, and prostatic tuberculous and carcinoma. According to the table it will be seen that hyperplasia of the prostatic lymphoid tissue occurs most frequently in association with chronic hyperplastic inflammation and in cancer of the prostate. In the hyperplastic prostate therefore it was found in about one-third of the cases. The lymphoid hyperplasia is undoubtedly directly associated with the inflammatory process, as is the case in chronic inflammations of other organs such as the cervix of the uterus, endometrium, tubes, and kidneys, in which the rudimentary lymph nodes are normally as small as those in the prostate, but in conditions of chronic inflammation often become as large, or even much larger than the solitary follicles of the intestinal tract. Particularly in the kidney of chronic pyelonephritis, the apparent new



Fig 5 Hyperplastic rudimentary lymph follicles in stromal interstitium of prostate (from patient 69 years old, who had had prostatic hyperplasia for 5 years). Chronic hyperplastic prostatitis.



Fig 6 Hyperplastic rudimentary lymph follicles in stromal interstitium of prostate.

formation of lymphoid follicles with germinal centers is often very striking. While some of them may be new formations of lymphoid centers the majority are probably hyperplasias of pre-existing rudimentary follicles. Hyperplasia of the latter occurs in practically all parts of the body in prolonged local chronic inflammations. Therefore the hyperplastic rudimentary lymph follicles of the prostate seen in chronic prostatitis with glandular and interstitial hyperplasia are the direct result of the chronic infection and inflammation (inflammatory hyperplasia).

Likewise in the carcinoma cases the frequent hyperplasia of these primitive lymphoid

cells, and serial sections showed an invasion through the gland by way of the lymphatics. A similar extension was seen in the one case of secondary sarcoma. Hemosiderin was found in the lymphoid follicles in several of the cases of chronic prostatitis. Both of these findings show that these rudimentary lymph follicles functionate as in other parts of the body.

The one case of lymphatic constitution was from a boy fourteen years of age dying of tetanus. He presented the usual complex of hyperplastic thymus hypoplastic adrenals, and hyperplasia of the lymphoid tissue throughout the entire body particularly in the gastro-intestinal tract. In the prostate lymph follicles with germ centers were found scattered through the gland large enough to be seen with the naked eye in the stained sections. They showed a special localization around the mouths of the excretory and ejaculatory ducts, completely surrounding these with a ring of lymphoid tissue.

showing the growth of the latter. In fact all of the cases of carcinoma showed both glandular hyperplasia and increase of stroma. In one case of scirrhous adenocarcinoma the hyperplastic lymph nodes contained car-

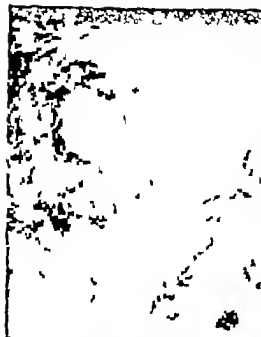


FIG. 3. Section from adenocarcinoma of prostate as in Figure 2, showing hyperplastic lymph follicle with well-developed germinal center.



FIG. 4. Hyperplastic rudimentary lymph follicle in glandular portion of prostate shows marked glandular hyperplasia and cystic dilatation of glands. Patient 50 years old, had had prostatic symptoms for 5 years.

From inflammatory infiltrations the rudimentary lymph nodes are easily distinguished by the uniform character of the cells, their arrangement, the demonstration of the endothelium of the lymphatic vessels and the fibers of the reticulum. When there is a germinal center in the node there is, of course, no difficulty.

In an examination of 322 prostates, hyperplasia of the rudimentary lymph nodes was found in 31 cases, as follows:

| Pathological condition | Number of cases | Hyperplasia of lymph nodes |
|----------------------------------|-----------------|----------------------------|
| Lymphatic constitution | | |
| Lymphocytosis | | |
| Myeloma | | |
| Normal prostate | 45 | |
| Acute prostatitis | 43 | |
| Chronic hyperplastic prostatitis | 57 | 3 |
| Atrophic prostate | 1 | |
| Tuberculosis of prostate | | |
| Syphilis of prostate | | |
| Neoplasia (adenocarcinoma) | | |
| Secondary sarcoma | | |
| Carcinoma | 4 | 6 |
| Total | 1 | 3 |

Well-developed germ centers of large size were found in five cases, in one case each of hyperplastic prostatitis, atrophy of prostate, lymphatic constitution and prostatic tuberculosis and carcinoma. According to the table it will be seen that hyperplasia of the prostatic lymphoid tissue occurs most frequently in association with chronic hyperplastic inflammation and in cancer of the prostate. In the hyperplastic prostate, therefore, it was found in about one-third of the cases. The lymphoid hyperplasia is undoubtedly directly associated with the inflammatory process, as is the case in chronic inflammations of other organs, such as the

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SYNCYTIOOMA (ATYPICAL CHORIOOMA) OF THE UTERUS TERMINATED BY ACUTE PERITONITIS¹

By HENRY E. MELENEY, M.D. PEKING, CHINA
Associate in Pathology, Peking Union Medical College

CHORIOOMA, the interesting tumor developing from the ectodermal elements of the chorion of the fetus, is known to vary widely both in clinical course and in gross and microscopical appearance. In many cases it is an extremely malignant tumor causing extensive local destruction of tissue and metastasizing widely by way of the blood stream. In other cases, with the early clinical and microscopical appearance much the same it is cured by curettage or else spontaneously retrogresses occasionally even after the appearance of metastasis in the lungs or vagina.

Even the earliest writers on choriooma, especially Marchand (1) recognized the great variation in the course taken by the tumor and the difficulty of determining from the histological examination either of curettings or of specimens removed at operation what the ultimate outcome would be. More recently however attempts have been made to classify the various forms of the tumor (Schmauch, 2; Ewing 3; von Velitz, 4; R. Meyer 5) so as to determine if possible, the criteria by which the surgeon could decide whether hysterectomy were required for a complete cure or whether curettage would suffice. Such a classification has not as yet been relied upon to any great extent, in determining surgical procedure, and is considered unreliable by some of the recent writers on the subject (Goff 6). However it is probably true that some definite law determines the benign

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The elements which may enter into the formation of the choriooma are the cells of the two ectodermal layers of the chorionic villi, namely Langhans cells and syncytium. Of these the Langhans cells seem to be the

element which has the power of destructive invasion and metastasis, while the syncytium apparently plays the rôle merely of an accomplice. Not all chorioomata contain both elements, but they all contain syncytium. Some of those which contain both elements are benign in their course, some are malignant but all of those containing only syncytium are apparently benign.

The syncytium as it occurs in the tumors is often not a typical syncytium but takes the form of large cells of various shapes, with deeply staining acidophilic cytoplasm and a single nucleus varying in size, shape and staining property. Occasionally one cell contains two or three nuclei. That these cells are really derived from the syncytium is evident from their similarity to the true syncytial masses which are often present in the same tumor. The extraordinary thing about these cells is their apparent power of wandering from their original site through the tissue of the uterus, especially into the myometrium where they are found singly or in groups between muscle cells, in the connective tissue, and especially in relation to blood vessels. Often they even bulge into the lumen of a vessel and it is probably their special tendency to do this that leads to the frequent metastasis of the tumor by way of the blood stream.

One of the striking facts connected with the benign chorioomata is the frequency with which acute infection of the uterus accompanies the condition, often leading to a terminal septicæmia or peritonitis. This feature is so common that some writers have called the condition "syncytial endometritis." The persistence in the recently pregnant

present. The uterine wall, due to the presence of the tumor remains abnormally vascular

Inasmuch as the lymphoid hyperplasia in the lymphatic constitution is a generalized process it would be expected that the rudimentary

leukæmic lymphocytoma, leukæmia, pernicious anemia, etc. In a case of generalized lymphocytoma with prominent lesions in the intestinal tract and salivary glands reported by E. E. Butterfield from this laboratory in 1907 no lymphoid collections were found in the prostate. I have examined the sections of prostate in eighty autopsy cases in this laboratory including cases of myelæmia, Hodgkin's, lymphosarcoma, pernicious anemia, etc., but in only two cases, one of lymphocytoma and one of myelæmia, did the sections show any hyperplasia of the prostatic

conditions, the hyperplasia is essentially an inflammatory one due to chronic infection or irritation, and possesses the same significance that such hyperplasias have in other parts of the body.

In the absence of chronic inflammation, a hyperplasia of the primitive lymph nodes of the prostate occurs in the lymphatic constitution, and may be found also in other generalized diseases of the lymphoid system, as Hodgkin's disease, lymphocytoma, and leukæmia.

In both the inflammatory and non-inflammatory hyperplasias well-developed germinal centers may be produced in the hyperplastic node. Other evidences of functional activity by these hyperplastic nodes are shown in the metastasis of pigment tubercle bacilli and carcinoma cells to them.

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he will report later

CONCLUSIONS

Small primitive or rudimentary lymph nodes occur normally throughout the prostate in the form of very small aggregations of lymphocytes located beneath the glandular and duct epithelium most marked toward the outlets of the ducts. They are analogous to the rudimentary lymph nodes found in other organs, such as the liver, kidneys, uterus, etc.

Hyperplasia of these rudimentary lymph nodes of the prostate occurs chiefly in chronic hyperplastic prostatitis and in primary carcinoma of the prostate. In both

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Fig. 3. Syncytoma. Syncytial cells in myometrium beneath tumor. (X 50.)



Fig. 4. Syncytoma. Another group of tumor cells in the myometrium. (X 50.)

smooth muscle —

the vein. It did not, however, extend beyond the region of the kidney pelvis either toward the vena cava or into the left ovarian vein. The thyroid gland

was enlarged and lobular and on section consisted of colloid glandular tissue and several large colloid cysts. The heart, aorta, liver and other visceral organs were grossly normal. The head was not opened.

Macroscopically, the mass in the uterine cavity consisted of a thickening of the stroma of the uterine mucosa with entire absence of lining epithelium or glands, but containing scattered masses of smooth muscle. There were a few large blood vessels



Fig. 5. Syncytoma. Syncytial cell conforming to the shape of surrounding smooth muscle cells. (X 600.)



Fig. 6. Syncytoma. Syncytial cells showing details of shape and of nucleus. (X 350.)



Fig. 1. Uterus and adnexa showing syncytoma in right cornu of uterine cavity. Posterior view.

absorption from the mucous surface is great and the way is open for the formation of septic thrombi in the uterine veins or for extension of the infection to the peritoneal surface.

The following case is reported to illustrate the septic termination which may occur in the presence of an insignificant and apparently regressing chorioma of the syncytial type.

A Chinese woman, age 35, was admitted to the Sleeper Davis Memorial Hospital, Peking, complaining of palpitation of the heart and weakness. Family and past history were irrelevant. She had been married at 18 years of age and had had six children, the last one born 3½ years ago. One year before admission she had a miscarriage at which time she had a severe uterine hemorrhage, which recurred frequently thereafter until the date of

Abdominal and vaginal examinations were negative.

While confined to bed in the hospital, uterine hemorrhage recurred without apparent cause. Temperature varied between normal and 100.5° F. for the first 3 weeks in the hospital. At the end of this time there was only a scant pink vaginal discharge. She then had a sudden rise of temperature to 104.1° after which her illness took on a septic course with temperature remaining above 101° F.

complicated
abdominal
night.

Rectum



Fig. 2. Syncytoma. Syncytial cells in tumor near surface of uterine mucosa. (A 50)

fibrous adhesions. Culture of the peritoneal fluid and heart's blood yielded hemolytic streptococcus. The uterus was slightly enlarged, measuring 8 centimeters in length by 7 centimeters across the fundus, and on being opened was found to have a rather large cavity containing a little purulent fluid similar to that in the peritoneal cavity. Since from this fluid showed pus cells and many gram-positive cocci in pairs and short chains. A culture was not made. In the uterine mucosa there were many small hemorrhagic areas. Otherwise the endometrium was pale but was neither swollen nor soft. The myometrium was pale, firm and not

surface (Fig. 1). In the cervix were several small cysts containing clear fluid. In the uterine veins about the cervix and near the right fundus were

but showed no gross pathological changes.

The thyroid glands (A 41, 42, 43) were

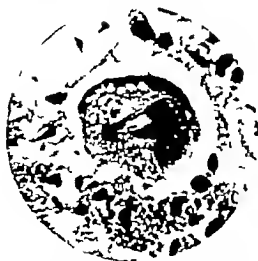


Fig 9 Syncytioma Detail of syncytial cell (X 600)



Fig Syncytioma Another syncytial cell (X 600)

little doubt but that the tumor would have ultimately disappeared entirely. While still present, however it was probably at least a portal of entry through its soft necrotic surface, for the extension of the infection into the uterine wall. Without the presence of the tumor the infection of the uterine cavity might have been self-limited.

The source of the uterine infection is not clear but, with the parturient condition of the organ prolonged by the presence of a portion of the embryo a condition existed which, especially in an ignorant person without medical attention invited the introduction and growth of pathogenic organisms which may have been present in the vagina.

The course of the disease in this case is the same as that which occurs in a considerable proportion of cases of syncytioma. In Schmauch's summary of 206 cases of chorioma (2) seven died of sepsis and in all these the tumor was benign. In some cases of this type as in Hammerschlag's fourth case (7) there is

able outcome from extension of a possible infection through the susceptible tumor tissue.

SUMMARY

1. A case of atypical chorioma is reported in which the necropsy showed a small tumor

streptococcus bacteremia.

2. The tumor consisted only of syncytial cells lying singly and in clumps in the swollen stroma of the uterine mucosa and in the superficial portion of the myometrium.

3. The case illustrates the importance of early determination of the cause of uterine bleeding, not only in order to deal properly with the tumor itself but also to avoid a termination by acute general infection.

I wish to express my thanks to Dr. Emma E. Martin of the Women's Union Medical College, Peking, for permitting me to examine and report this case.

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4. Hammerschlag, J. *ibid.* 19, 2, 366.
5. *ibid.*
6. *ibid.*
7. *ibid.*

1924, 11, 208

establishing an early diagnosis of the cause of persistent uterine bleeding after abortion or parturition. It also illustrates the necessity of removing all possible tumor tissue in the presence of a chorioma, to avoid an unfavor-



Fig. 7. Syncytial cells in the wall of an artery in the myometrium. (X 250)

and very many small ones, especially capillary



Fig. 8. Syncytial cells abutting on blood space in the uterine wall. (X 250)

veins. About the right tube however several vessels, whether veins or lymphatics it was impossible to determine were packed with poly-

which they lay conforming their shape to the

vessels were normal. The ovaries each contained

cells etc etc with some together but were

and which might account for the changes in relation to a long illness terminated by an acute general infection. The thrombi in the uterine and renal veins were all sterile.

The points of special interest in this case are, first, the insignificant and retrograding

found in any other part of the uterus than that immediately adjacent to the tumor.

The myometrium was normal except for the presence of the tumor cells. Its blood vessels contained no thrombi. Sections from the remainder of the uterus showed loss of all of the surface

toward the peritoneal cavity and the general circulation. Without the presence of the infection which terminated the case, there is



Fig. 3. Cystic malignant myxoma of Meckel's diverticulum. Outside view.

Benign and malignant tumors may develop in the wall of the diverticulum.

These menacing characteristics of Meckel's diverticulum amply justify Porter's advice that whenever one is observed during the course of an operation it should be removed, if the condition of the patient will permit the additional manipulation.¹

The following report gives my experience with Meckel's diverticulum. The three cases were observed in the course of nearly 1400 intraperitoneal operations performed during the past 15 years.

CASE. Acute diverticulitis

S. No. 3747. The patient, a white female, age 18, was sent to the Mercy Hospital by Dr. Wilkinson, on account of recurrent attacks of abdominal pain. The previous attacks had been diagnosed acute appendicitis. On admission the patient had colic like pain, with tenderness, muscle spasm, and rigidity in the right lower quadrant. On deep palpation a mass was felt at the edge of the rectus muscle about 2 inches below the level of the umbilicus. The mass slipped under the fingers, and was removed.



Fig. 4. Cystic malignant myxoma of Meckel's diverticulum. Inside view.

edge of the rectus was hooked up by the finger and

dissected, and turned in by Lambert sutures. The healthy omentum was clamped around the mass, which was removed with the diverticulum. The abdomen was closed without drainage and the patient recovered.

The specimen (Fig. 1) consisted of the gangrenous diverticulum and the adherent mass of omentum. The wall of the diverticulum was soft and pulpy. The mucous membrane and musculature were almost entirely destroyed, leaving intact only the peritoneal coat.



Fig. 5 and 6. Cystic malignant myxoma of Meckel's diverticulum. Low and high power micrographs.

MECKEL'S DIVERTICULUM¹

By ALEXANDER McGLANNAN AND F. C. S. BALDWIN

THE relative frequency of the occurrence of Meckel's diverticulum is given by most authorities as between 1 and 2 per cent. Albers² puts it at 0.1 per cent. *Coley and Fortune*³ say: "In 18,000 autopsy examinations of subjects who died of other trouble 15 cases of Meckel's diverticulum were found."⁴

The true frequency is probably between these extremes and the wide discrepancy may be explained by *Mitchell's* observation⁵ that its order of occurrence is quite inconstant; thus, in 200 successive autopsies not one case was found and then again its presence was noted in two successive cases.

Whatever difference of opinion may exist among anatomists as to the frequency of its occurrence, there is no doubt among surgeons as to the possibilities for danger existing in this foetal remnant.

Intussusception may be limited to an invagination of the diverticulum itself or this invagination may be the starting point for a complicated intaking of the bowel extending

well into the colon. With an umbilical fistula the intussusception may consist of invagination

former event faces will be discharged from the apex of the protrusion, while in the latter the faces will come from the groove behind the apex.⁶

Volvulus of the diverticulum alone, or with this structure as a starting point, a twist involving a loop of small intestine may lead to gangrene of the bowel. Acute inflammation of the diverticulum is likely to end in perforation and peritonitis. When attached to the umbilical scar the resulting band becomes the cause of certain cases of intestinal obstruction. When unattached the free end may become adherent to the mesentery to the intestine, or to the parietal peritoneum and produce obstruction, either as a constricting band about the bowel or by a kinking as a result of traction. If the diverticulum is long and especially when the free end is knoblike the tip is likely to loop itself around the remainder of the structure in such a way that a knot is formed. A segment of bowel falling into this knot will soon become obstructed and strangulated (Fig. 8).

Meckel's diverticulum may be the sole content of a hernia (*Littre's hernia*) or it may be present with other portions of the bowel. The diverticulum has been found in umbilical, inguinal and femoral hernias, strangulated or otherwise.

various types of cystic tumors of the abdomen. A volvulus in which the twisting is not rapid or tight enough to cause gangrene may end in a cystic dilatation with a flat pedicle

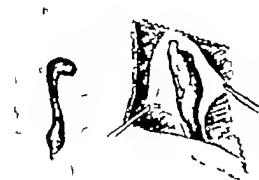


Fig. 7. Acute diverticulitis. The gangrenous diverticulum is surrounded by adherent mass of omentum. Note the narrow opening at the base of the diverticulum.
Fig. 8. Meckel's diverticulum as the sac of a femoral hernia.

Cancer. *Ann. Surg.* 1909, 49.
Tumors, Intestinal Obstruction. *Ann. Surg.* 1914, 58.
Cancer. *The Lancet*, 1914.

Meckel's diverticulum has often been found as the contents of a hernia, either alone or with other structures including the cæcum and appendix. In about three-fourths of the reported cases the diverticulum is the sole occupant of the hernial sac, as it was in the case reported by Littré¹ which gave his name to this type of hernia.

The proportion of inguinal to femoral hernias containing the diverticulum was about three to one in Pabst's² collection of 123 cases. The total number of strangulated hernias was 54 of which 35 contained the diverticulum alone. Strangulation occurred in 17 of 24 femoral and in 35 of 66 inguinal hernias. When the diverticulum was the sole content of the strangulated hernia the local signs were marked while the symptoms of intestinal obstruction were mild or absent.

CASE 3. Large cyst of Meckel's diverticulum, sarcoma of cyst wall.

S 4190. The patient a white man, age 50 was sent to the Mercy Hospital by Dr. McAvoy on account of discomfort in his abdomen, with progressive loss of weight and vigor. He had a large nodular tumor occupying the lower hemisphere of the abdomen. The tumor was movable through a rather long up-and-down excursion. There was some pain in the right lower quadrant when the mass was manipulated. After study a diagnosis was made of tumor of a relaxed transverse colon or of the omentum.

Operation, November 3, 1917. McGlannan. Ether anesthesia. A long incision was made through the inner border of the right rectus. When the peritoneum was opened, a dark purple cystic mass was exposed, filling the greater part of the abdominal cavity. There was a number of very large veins in the wall of the cyst and the omentum was adherent at several points on its circumference. At the upper pole of the cyst there was a loop of small intestine, apparently adherent to the growth. In exploring the attachments of the cyst, it was ruptured and a large quantity of dark brown, bloody fluid was discharged.

THE TUMOR was recognized as a development from a Meckel diverticulum.

This pedicle was clamped and divided and the intestinal wall closed with catgut and linen sutures.

Memo de l'Académie de Médecine, 1900, p. 200.

Bull. A. M. Chir. 1902, Jan., 461.

The peritoneal cavity was mopped out and the pelvis drained. The treatment of peritonitis was begun at once the patient being kept in the upright position and under the influence of opium. He was

The tumor is a large, nodular, cystic mass, the size of a large orange, which is movable through a rather long up-and-down excursion. There was some pain in the right lower quadrant when the mass was manipulated. After study a diagnosis was made of tumor of a relaxed transverse colon or of the omentum.

Cysts developed from Meckel's diverticulum are extremely rare. As far as I have been able to search the literature, the only cyst of a diverticulum as large as this one that has ever been reported, is Black's case,³ reported to this society at the Baltimore meeting. In Black's case the diverticulum grew from the sigmoid.

Symmers⁴ reports a case of malignant myoma associated with Meckel's diverticulum and refers to Fried's report of a fibromyosarcoma and to Kaufmann's report of a spindle-cell sarcoma, both tumors having their origin in the wall of a Meckel's diverticulum.

Through the courtesy of Dr. George A. Stewart, I am able to add the following case.

CASE 4. Intestinal obstruction due to snaring of a loop of small intestine in the knot of a free Meckel's diverticulum.

The patient was a white man, age 42 yrs. The history previous to the attack of obstruction was negative and there was no umbilical deformity or discharge. The onset of the attack occurred at 1 a. m. with nausea and vomiting quickly followed by abdominal pain. His bowels moved once, but this did not give him any relief from his pain. Twelve hours after the onset his abdomen was generally tender and distended. At operation the gangrenous loops were resected and a lateral anastomosis done.

The specimen (Fig. 7¹) shows the distended gangrenous small intestine caught in the knot of the diverticulum, the end of which is bulbous.

Bull. Otolaryng. & Chir., 1916, 37, 713.

Ann. Surg. 1904, Jan., 11.

This picture as well as the diagram illustrating the formation of the kink are reproduced by courtesy of Dr. Collins from his book, *The Upper 20 and its Diseases*.

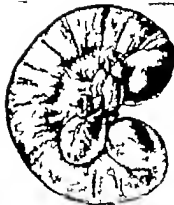


Fig. 7. Strangulated intestine caught in the loop of Meckel's diverticulum (Callie).

While cases of acute diverticulitis are not common several have been reported. Practically all of them have been diagnosed appendicitis before operation. In some of the earlier reports an attempt is made to outline symptoms characteristic of disease of Meckel's diverticulum. At the present time, however the opinion of those best fitted to judge is that unless some anomaly of the umbilicus is present, or is clearly indicated

ulitis.

Coincident acute appendicitis and perforation of Meckel's diverticulum has been

sequent stasis within its lumen as a cause for the onset of an inflammatory process. The opening of the diverticulum into the bowel is generally wide. This fact may explain the relative infrequency of acute inflammation as compared with other lesions of the diverticulum.

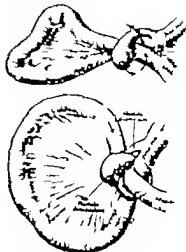


Fig. 8. Diagram illustrating Figure 7 (Callie).

CASE 2. Femoral hernia containing Meckel's diverticulum.

S. No. 15784. The patient, a white man, age 40,

rides on horseback over rough country and he attributed the hernia to this exertion. A truss had been worn, but proved unsatisfactory and the hernia became painful when he took a long ride

and when separated it was found to be a blind pouch adherent by its free end to the sac

(Fig. 9) The diverticulum was clamped at its junction to the ileum and removed. The inter-

phations

The diverticulum was 5 1/2 inches long and 7/8 inch in diameter at its base. The tip had one small nodular projection. The mucous membrane and

since, when the sphincter of Oddi is paralyzed by the action of magnesium sulphate the positive pressure in the duct forces its content into the duodenum. If later there is a sudden change to a dark brown bile (B bile) it is natural to suppose it is from the gall bladder since if we admit the existence of the law of contrary innervation of gall-bladder and sphincter muscle the gall bladder content should now be forced out into the duodenum. The proof of the contention that gall-bladder bile is darker and more concentrated than liver and duct bile is now available in the evidence presented by Rous and McMasters (37) on the concentrating activity of the gall bladder. If no dark

color of the bile grows lighter and lighter and one may suppose that having exhausted the contents of both the common duct and the gall bladder the bile coming forth is hepatic bile ("C bile") i.e. bile from the hepatic ducts and its finer tributaries. The specimens obtained must then be studied for their bacteriological, cytological, and chemical content.

Thus far the test does not seem difficult of performance and, indeed it may not be. But there are several pitfalls. One of these is the difficulty of being sure that the tip of the tube is in the correct portion of the duodenum or even in the duodenum. In our work we have controlled every case by fluoroscopy and we feel that any other method is inaccurate.

normally. One deduces therefore that all Whipple's cases were pathological. Some investigators tell us that the patient can locate the tip subjectively if aided now and then by pumping in some air; others think a certain resistance on tugging locates the tube

duodenal contents and specimens of "A"

"B" and "C" biles, what knowledge can we deduce from their examination? The gastric and duodenal contents are examined as to reaction, color and cellular and bacteriological findings, chiefly for control. Let us say at once that in all our cases except those of total biliary obstruction, the fasting duodenal content has always been bile-stained. This is true even in normal cases. This has always mystified us a little especially as Lyon (25) regards it as an abnormal finding and since Boldreff (3) Bruno (5) and Khodnitsky (21) in Pawlow's laboratory working with dogs on the secretion of bile found that bile was ejected intermittently into the duodenum and only rarely in the fasting state. Can it be that the presence of the tube in the pylorus serves as a sufficient stimulus?

The examination of the three specimens of bile is the most important part of the test. The color changes are first observed and on them depends the correct sequestration of the bile. We have always found it difficult to recognize this change in color. Yet difficult as it is we have come to place most reliance on this factor. Herein lies the value of each investigator acquainting himself with the reaction in normal cases. Without this experience in normal cases it is almost impossible to judge pathological ones.

Microscopical examination of the sediments except for outspoken cases of obvious gall-bladder infection with pus in the sediment, has proven of little value. The mixture with gastric content which now and then comes over probably in some cases more than in others because of paralysis of the sphincter the lack of specific characteristics of cells in the biliary passages and the multiplicity of possibilities renders any judgment based on such a study open to criticism. The knowledge of biliary disease gained from such a study cannot be as valuable as that obtained concerning the kidneys by a study of urine sediment. Today little weight is placed on such findings.

Bacteriological examination of the specimens has also proven unreliable in our experience, less because of contaminations or un-

The mechanism of these knots was worked out by Pavise and others in 1845 and is illustrated in Treves *Intestinal Obstruction* p. 50.

Among congenital causes of intestinal obstruction Meckel's diverticulum is generally accepted as the one most frequently present. In the series of 176 cases which I studied in 1915¹ there were 9 instances where the diverticulum was recognized as the cause of the obstruction. Six of the patients died

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and three recovered after operation. In one case the diverticulum was attached to the inner surface of the umbilicus by a cord. In the others it was free or had become adherent by its tip, or a cord to the bowel or mesentery. The obstruction was caused by entanglement of a loop of intestine around the diverticulum except in one case where the adherent diverticulum kinked the bowel by traction. In none was there any umbilical deformity or discharge.

SOME EXPERIENCES WITH THE MELTZER-LYON² TEST IN GALL-BLADDER DISEASE

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INTRODUCTION

THE "Meltzer-Lyon test" as is well known is a method proposed for the diagnosis and treatment of biliary pathology. It consists in the instillation of a strong solution of magnesium sulphate in the duodenum by means of a tube with the hope that this will paralyze the sphincter of Oddi; that this paralysis of the sphincter will be followed by reflex contraction of the gall bladder thus permitting the collection of specimens of common duct gall-bladder and liver bile. It is based on the experimental evidence that 25 per cent magnesium sulphate applied to the intestinal mucosa of a dog causes relaxation of the musculature in that area (Meltzer 20). Subsequent investigation would seem to show that a solution of magnesium sulphate in the duodenum will relax the common duct sphincter (28). The test is further based on the assumption as yet unproven that with relaxation of the sphincter of Oddi the gall bladder contracts (25, 29). This latter assumption of the law of contrary innervation is merely the application of a principle already recognized by physiologists and applicable to other parts of the body. The experiments of Doyon (9) and Freese (13) demonstrated the double

innervation of the gall bladder and although their experiments seemed to show that the muscle wall had but little contractile power the above assumption is very tempting. However the proof of this hypothesis is wanting.

The clinical performance of the test has been repeatedly described (Lyon 23, 24, 25). It consists in the passage of a sterile tube into the first portion of the duodenum. The passage of the tube is aided by various manoeuvres, the most helpful of which is elevation of the hips and keeping the patient on the right side once the tube has reached the stomach. Specimens of gastric and duodenal content are aspirated for study as encountered. When the tip lies in the duodenum a solution of magnesium sulphate varying in concentration from 20 to 40 per cent and in amount from 50 to 100 cubic centimeters is instilled the tube pinched off for from 3 to 5 minutes following which the duodenal content is secured by aspiration or syphonage. The first material recovered is chiefly the magnesium sulphate solution instilled but this is soon followed by a yellowish fluid increasingly bile-stained. The first bile-colored fluid recovered is naturally the content of the common duct ("A bile")

¹Lyon used tubes A, B, and C tube to represent specimen of common duct, gall bladder and liver bile respectively.

test and at operation. Possibly some special media, as Lyon suggests, are necessary and some special technique. It is true that we have several times seen bacteria in the microscopical study of the sediment, and yet failed to grow an organism on any of the media inoculated. Time and again we have supposed a failure to obtain growth on artificial media was due to the known inhibitory effect of bile on the growth and life of most bacteria, and other investigators (Garbat 15 Einhorn and Meyer 12) have reported that bacteria can often be demonstrated in gall bladders from which no positive culture can be obtained. Lyon (24) has advocated sterilization of the upper gastrointestinal tract but in our experience this is not feasible, and unnecessary because of the proven sterility of this field (7) due to the action of gastric juice (16 18 27).

Thus the technique of the performance of the test is simple only in description. The necessary controls make it a complicated affair for they necessitate bacteriological, microscopical, and X-ray apparatus. And if one is studying the test, not merely performing it, normal control cases and an examination of the gall bladder either at operation or autopsy are essential. The necessity for normal controls is obvious, and it was unfortunate that such controls were not reported by the originators of this test since the absence of such controls has led to much confusion in the translation of findings and has thrown much doubt by subsequent workers on the value of a brilliantly imaginative idea. For well over a year we have had the opportunity to study this test in relation to the diagnosis of gall-bladder disease.

MATERIAL INVESTIGATED

A. Normal controls. The test as described by Lyon with the modifications stated above was used. In each instance the tip of the tube was localized in the first portion of the duodenum by fluoroscopy before adding the magnesium sulphate solution. The cases cited are from the surgical clinic of this hos-

pital, and can be criticized on the basis that no patient coming into a hospital is normal. However the cases in this normal group were selected as ones in which no suspicion

of these revealed the normal gall bladder suspected when the test was performed. The eight cases reported are typical of all other control-cases studied (Table I).

Our observations served two purposes: (1) to establish the normal sequence of findings in the contents of the duodenum aspirated after the instillation of magnesium sulphate, and (2) to educate our own discrimination as to normal changes in the color of the specimens of bile obtained. We soon found this latter was very important since the differences between normal and abnormal color changes are often difficult to detect. In fact we do not believe this power of discrimination can be given by written description, but must be had by first hand experience by all who intend to use the test.

This group of normal cases resulted in findings common to

changes. At the same time the beginning and end points for "B" bile were often rather arbitrarily distinguished because of the very slow and slight change in color and other physical attributes. It seemed however that by this test it might be possible to obtain three differing specimens of bile which would appear from their physical characteristics to represent common duct ("A" bile) gall bladder ("B" bile) and hepatic duct or liver bile ("C" bile).

Bacteriological and cytological studies were made on all specimens sequestered. Records of these findings are not included on the chart but it may be said that in none of the normal cases cited was a bacterial growth obtained. A study of the sediment was made as a routine but the type of sediment varied in accordance with the amount of gastric content that came over during the collection of the specimens. Abnormal numbers of leu-

TABLE II—CLASS I NO GALL-BLADDER B BILE—CONTINUED

| Case No. | Age, Sex, Occurrence | Chief Complaint and Duration | General Condition | Findings in Test | | | | Pre-operative Diagnosis | Operative Findings | Remarks |
|----------|----------------------|---|--|-----------------------------|--|--|--------|-------------------------|-------------------------------------|---|
| | | | | Stomach Contents | Digested Contents | Bile A | Bile B | Bile C | | |
| 2712 | Male, 39 | Pain in right upper quadrant 6 to 7 years | Good. Anorectic | Acid, watery normal, clear | Alkaline, soft, fatty, yellow, no mucus, no bile | Alkaline, green, yellow, no mucus, no bile | None | None | Doubtful about gall stones | Cholecystectomy. Postoperative recovery. Good recovery. |
| 2713 | Female, 40 | Pain in right side 10 years | Good. Chills, fever, nausea, vomiting, constipation | Acid, watery, clear, normal | Alkaline, watery, yellow, no mucus, no bile | Alkaline, green, yellow, no mucus, no bile | None | None | Transverse colon, no mucus, no bile | Cholecystectomy. Postoperative recovery. Good recovery. |
| 2714 | Female, 40 | Weakness and pain in right side 10 years | Good. Occasional chills, fever, nausea, vomiting, constipation | Acid, watery, normal, clear | Alkaline, watery, yellow, no mucus, no bile | Alkaline, green, yellow, no mucus, no bile | None | None | Transverse colon, no mucus, no bile | Cholecystectomy. Postoperative recovery. Good recovery. |
| 2715 | Male, 40 | Pain in right upper quadrant 10 years | Good. Occasional chills, fever, nausea, vomiting, constipation | Acid, watery, normal, clear | Alkaline, watery, yellow, no mucus, no bile | Alkaline, green, yellow, no mucus, no bile | None | None | Transverse colon, no mucus, no bile | Cholecystectomy. Postoperative recovery. Good recovery. |
| 2716 | Female, 40 | Pain in right upper quadrant 10 years | Good. Occasional chills, fever, nausea, vomiting, constipation | Acid, watery, normal, clear | Alkaline, watery, yellow, no mucus, no bile | Alkaline, green, yellow, no mucus, no bile | None | None | Transverse colon, no mucus, no bile | Cholecystectomy. Postoperative recovery. Good recovery. |
| 2717 | Female, 40 | Pain in right upper quadrant 10 years | Good. Occasional chills, fever, nausea, vomiting, constipation | Acid, watery, normal, clear | Alkaline, watery, yellow, no mucus, no bile | Alkaline, green, yellow, no mucus, no bile | None | None | Transverse colon, no mucus, no bile | Cholecystectomy. Postoperative recovery. Good recovery. |

TABLE II—CLASS I. NO GALL-BLADDER & BILI

| Case No. | Age | Sex | Chief Complaint | General Condition | Menstrual Condition | Endometrial Condition | Examination | | | Prognostic Comments | Operative Findings | Remarks |
|----------|-----|-----|--|-------------------|--|--|--|-------|-------|---------------------|--|----------------------------------|
| | | | | | | | Mb. A | Mb. B | Mb. C | | | |
| 1000 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | Chief complaint is irregularity of menses, with occasional profuse flow. | Same as above, no abnormality. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |
| 1001 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | None abnormal. | Adm. dark, firm, granular, no blood. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |
| 1002 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | Adm. dark, firm, granular, no blood. | Adm. yellow, soft, granular, no blood. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |
| 1003 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | Adm. dark, firm, granular, no blood. | Adm. yellow, soft, granular, no blood. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |
| 1004 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | Adm. dark, firm, granular, no blood. | Adm. yellow, soft, granular, no blood. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |
| 1005 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | Adm. dark, firm, granular, no blood. | Adm. yellow, soft, granular, no blood. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |
| 1006 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | Adm. dark, firm, granular, no blood. | Adm. yellow, soft, granular, no blood. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |
| 1007 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | Adm. dark, firm, granular, no blood. | Adm. yellow, soft, granular, no blood. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |
| 1008 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | Adm. dark, firm, granular, no blood. | Adm. yellow, soft, granular, no blood. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |
| 1009 | 25 | F | Pain in right upper abdomen, increasing in severity, especially after meals. | Good | Adm. dark, firm, granular, no blood. | Adm. yellow, soft, granular, no blood. | Adm. yellow, soft, granular, no blood. | None | None | Cholelithiasis | A large, rounded, yellowish, firm mass, 2 cm. in diameter, with a smooth surface, and a few small, dark, granular spots. | Cholelithiasis, no gall-bladder. |

up later. Case No 27770 is presented to emphasize the findings in cases where no gall-bladder bile was obtained. Obviously without a gall bladder and when no infection is present the test would give the same result as with simple cystic duct obstruction. In case No 27897 in which the gall bladder also had been removed we have another comparable case although the operative findings of a common-duct stone complicates the picture. The thin yellow fluid recovered doubtless represented the fact that only a small amount of bile came through.

Thus in this first series of pathological cases in which no gall bladder bile was obtained the test found a rather high percentage of corroboration at operation. We cannot say however that it made any diagnosis more easy nor that it changed an opinion already reached by physical examination and history. In fact in cases Nos 27975 28075 27342 and 30454 it led us to the diagnosis of stone in the gall bladder or cystic duct whereas operation revealed no such lesion.

In the 5 cases in Class II—abnormal gall-bladder bile obtained by test—in which changed or abnormal bile was obtained for specimen "B" bile the most striking feature was the color change (Table III). In all cases the line of demarcation from "A" bile was very sharp and the B bile was characterized by being very dark, often viscid and in one case contained actual fine, putty-like black particles. In most of these cases an abnormally large amount was obtained which would lead one to suspect a dilated static gall bladder the amount of gall-bladder bile ranging from 160 cubic centimeters to 70 cubic centimeters. The deductions to be drawn from such a pathological, concentrated, dark bile in large amounts would naturally lead one to suppose the gall bladder was dilated atonic, probably infected and that because of inability regularly to empty itself the bile became continually more concentrated (Rous and McMaisters, 37). Bacteria were isolated from 3 of the 5 cases.

All cases came to operation where the test findings were substantiated. In case No 28909 there were only a few adhesions but

an atonic gall bladder. In those cases in which cultures were obtained cytological examination showed polymorphonuclear leucocytes, in the others almost no cells. The particles coming through in case No 27243 were putty like when handled and seemed to be composed of an amorphous rather than crystalline substance.

In this group the pre-operative diagnosis of stone was made as much on the history as because of the test findings. The positive features of the latter were the increase in amount and evident static quality of the bile obtained. Naturally this cannot be translated into anything more definite than gall-bladder disease. Why stones in case No 27753 sedimented in the ampulla should allow bile to get out and stones in the same situation in Class I should obstruct, we cannot say. The findings in cases Nos 27753 and 27243 were possibly indicative of stone but certainly could not be taken as absolute evidence.

There are but few cases in Class III—very little bile obtained—which is as one would expect for the finding of very little bile means obstructive jaundice and clinically this is only a small group. All cases were jaundiced. In all but the last case the jaundice was intense. In all cases the reduction in the amount of bile obtained was striking. In case No 28780, this was so marked that there was great question as to whether any bile was present or not until repeated tests were performed. Two of the four cases were operated upon. One case No 30773 showed pancreatitis and cholecystitis without stones. This patient died and autopsy was refused so that the final reason for the obstruction is still unknown. Case No 28434 was clinically malignant disease. Operation confirmed this diagnosis though the tissues in the region of the gall bladder, pancreas, and duodenum were all so matted together that the actual origin of the tumor was not determined. It is our opinion that with carcinoma involving the common duct there are no obstructive signs or symptoms until that obstruction is complete. In this case, therefore, although the biliary system was involved we think the tumor originated in some neighboring structure. Of the cases

cocytes were never noticed nor was there any evidence of the presence of cells that could be definitely attributed to the biliary tract.

Thus far our experiences were in accord with those of Lyon but a study of subsequent material shows that abnormal tests were obtained in normal cases. The latter are not included in this chart, since we have classified

tion and collapse. This patient was unrelieved by cholecystectomy and it is presumed that

to posterior gastro-enterostomy. In Case No. 27342 nothing pathological was found except a small transduodenal band which was divided. This patient was apparently

inflammatory oedema except for the fact that bile removed from the gall bladder at operation showed no growth. This leads us to the opinion that the growth obtained by the test was due to contamination. Case No. 30454 on three repeated tests showed no gall-bladder bile. Exploration revealed a normal gall bladder which was not removed. Subsequently this patient returned with the same symptoms. The test was again repeatedly pathological. This time the gall bladder was removed and proven normal by histological study.

A study of the table shows that bacterial findings were present in 5 cases, 35.7 per cent. Cytological study of the sediments gave us no further assistance. In No. 28976 in spite of the presence of an acute cholecystitis, no culture was obtained from the specimens of bile and only a few leucocytes were present in the sediment.

In those cases in which an abnormal test was corroborated by biliary pathology at operation, we found obstruction produced by stone in the cystic duct or sedimentation of stones in the ampulla. However in such a case as 28976 where there was an acute, tense, dilated gall bladder the obstruction seemed to be due more to mucoid exudate than to stone. Naturally other agents than stones can cause obstruction. That a simple mucous plug can result in a large, tense gall bladder is no argument against the contractility of the gall bladder through the stimulus of contra-innervation on relaxation of the sphincter of Oddi. This we shall take

shown in the discussion not all such patients showed the pathological anatomy suggested by the examination. For convenience the cases giving an abnormal test are classified as Class I cases in which no gall-bladder bile ("B" bile) was obtained. Class II, cases in which there was abnormal gall-bladder bile ("B" bile). Class III in which only a trace of bile was obtained in any of the specimens sequestered. Class IV in which no bile at all was obtained, and Class V cases with extra-biliary pathology.

Table II covers 14 cases in which the test gave no evidence of B bile (Class I). We have included only those which, either by repeated examination or the striking picture in the original test convinced us that the result obtained was consistent. It seemed as if in these cases, there must have been good anatomical reason for the failure to obtain gall-bladder bile.

All cases came to operation and in 10 of them (71.4 per cent) the test diagnosis was substantiated. In the remaining operation revealed no mechanism which could have prevented emptying of the gall bladder provided contrary innervation of the sphincter of Oddi and the gall bladder exists. Case No. 29075 on repeated examination, gave no gall-bladder bile and yet a gall bladder was

although syphonage could have emptied it had the sphincter of the common duct relaxed and if its diseased condition permitted relaxa-

TABLE IV—CLASS III VERY LITTLE BILE OBTAINED

| Case No. | Age, Sex, Occupation | Chief Complaint and Duration | General Condition | Findings in T w | | | | Pre-operative Diagnosis | Operative Findings | Remarks |
|----------|----------------------|---|--|---|---|--|--|--|--|---|
| | | | | Stomach Contents | Differential Coefficients | Bile A | Bile B | Bile C | | |
| 3372 | 37y, M | Jaundice 6 to 7 weeks | Good, com- mon bile more yellowish | Acid, yellow curdled | Acid, greenish mucous bil clots | Normal bile 3 flow, some green, yellow clot, red, low acid, no green curd, no gas carbonic, no fermentation growth + | Normal same color slightly yellow some sediment some culture | Normal same color slightly yellow some sediment some culture | Progressive (biliary) stone No common duct stone | Patient died Anastomy reduced |
| 3373 | 47y, M | Jaundice 1 month | Poor, thin emaciated normal common bile reduced | Acid, normal | Alkaline, pale mucous greenish bil + | Alkaline pale yellow mucous bil + | Alkaline to red mucous greenish acid color | Same as B | No operation | Died of hem- orrhage from anastomy Very slowly removal of bile yellow bile |
| 3374 | 41y, M | Jaundice 1 week | Good except for drop jaundice low of bile | Acid, normal, deciduous precipitation | Alkaline, yellowish mucous faintly acid growth + | Alkaline, same through out no decolor contents | Same | Same | No operation | Quantitatively bile normal Anastomy at later time operation absent (stone) |
| 3375 | 44y, M | Pain in hypochondrium mucous bile, reduced | Pale, an- emic slightly yellow lower bile concentrated | Alkaline, greenish precipitation | Alkaline, slightly yellowish bil + | Alkaline, same as dis- color control | Same | Same | Carcinoma in- volving com- mon duct, and gall bladder | Very little bile |

TABLE V—CLASS IV NO BILE OBTAINED

| Case No. | Age, Sex, Occupation | Chief Complaint and Duration | General Condition | Findings in Test | | | | | | Pre-operative Diagnosis | Operative Findings | Remarks |
|----------|----------------------|--------------------------------|---|--------------------|---------------------------|--------|--------|--------|---------------------------------|--|--|---|
| | | | | Stomach Contents | Differential Coefficients | Bile A | Bile B | Bile C | | | | |
| 3376 | 44y, M | Jaundice and vomiting 10 years | Loss of 20 pounds loss of weight in 1 year Left lower extremity swollen no bile thrombosis absent Clay stools | Acid, heavy mucous | None | Same | Same | Same | Malig- nancy absent common duct | Carcinoma absent stone in ampulla of Vater No bile in gall bladder | Carcinoma absent stone in ampulla of Vater No bile in gall bladder | Cholecystectomy cholecystec- tomy No recovery |

TABLE III—CLASS II ABNORMAL GALL-BLADDER BILE OBTAINED BY FLAT

[illegible]

explained the test and has cited numerous case reports in support of his theoretical claims. Whipple (43), Brown (4), Frieden-

hopfer as to its value. Reports by Dunn and Connell (10), Crohn, Reiss and Radin (6) and by Bassler, Luckett and Lutz (2) have shown contrary evidence much of which would seem to disprove the hypothesis upon which this test rests.

The basis of the test centers about whether or not the law of contrary or crossed innervation exists in relation to the gall bladder and the sphincter of Oddi. Meltzer (29) gives an excellent summary of the physiological facts accepted in regard to this mechanism up to 1917 when his paper was published but presents no experimental proof though the similarity to the action of the detrusor and sphincter muscles in the urinary bladder is striking. Freese (13) has shown that the force of contractility of the gall bladder is scarcely higher than the limits of secretory activity. And no evidence has yet been submitted proving that the gall bladder contracts with any appreciable force. However

relying on the law of contrary innervation and his observation that a 25 per cent solution of magnesium sulphate when applied directly to the mucous membrane paralyzes the gut at that point suggested that the use of this drug through a duodenal tube in diseases of the biliary passage might paralyze the sphincter of Oddi and cause contraction of the gall bladder.

The hypothesis that the gall bladder acts as a storage chamber in which the bile is concentrated has recently been proven by Roux and McMansters (37, 38). Pawlow's pupil (3, 5, 21) have long since demonstrated the intermittent deflection of bile into the intestines the flow depending upon the

presence of food in the stomach. That the mechanism of bile deflection depends on either nervous or hormonal influences seems to be shown by the fact that in the latter's experiments the sphincter muscle itself lay isolated from the gut and in contact with the skin and therefore, no food or chyme could act as a direct stimulant to the sphincter muscle.

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(5) and Kiodnitsky (21) demonstrated that food in the stomach is a sufficient impulse. They did not analyze the stimulus further. But various investigators have since shown that the presence of various inorganic salts

duodenum (19). In our own experience the constant finding of bile in the normal fasting duodenal content may be taken as an indication that the presence of a foreign body alone (the duodenal tube) is a sufficient stimulus, and Moppert (31) has shown that a thread through the pylorus calls forth the same reaction. These facts would seem to show (1) that there are a great number of substances of both chemical and physical nature which may call forth the deflection of bile and (2) that this stimulus need not necessarily reach the papilla of Vater.

So much for the known physiology of the stimuli that cause a deflection of bile. It seems reasonable to suppose that relaxation

sulphate. In the case of magnesium sulphate its action may be direct inhibition of the sphincter muscle. McWhorter (28) has shown that magnesium sulphate applied to the duodenal mucosa reduces the pressure within the bile ducts appreciably. However this must not be taken as evidence that, coincident with relaxation of the sphincter the gall bladder contracts. There are in fact many clinical observations (2, 30) that in anesthetized patients and in our own experience when novocaine was used for the exposure no contraction of the gall bladder

TABLE VI—CLASS V. CARE OF PEPTIC ULCER

| Date | Age | Sex | Chief Complaint | General Condition | Stomach Condition | Diagnosis | Treatment | Pre-operative Diagnosis | Operation | Remarks |
|------|-----|-----|---|-------------------|-------------------|--------------|----------------|-------------------------|----------------|--------------|
| | | | | | | | | | | |
| 1910 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1911 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1912 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1913 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1914 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1915 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1916 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1917 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1918 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1919 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1920 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1921 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1922 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1923 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1924 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1925 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1926 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1927 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1928 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1929 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1930 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1931 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1932 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1933 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1934 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1935 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1936 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1937 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1938 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1939 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1940 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1941 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1942 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1943 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1944 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1945 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1946 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1947 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1948 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1949 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |
| 1950 | 35 | M | Epigastric pain, burning, relieved by food and antacids | Good | Normal | Peptic ulcer | Antacids, diet | Peptic ulcer | Antacids, diet | Peptic ulcer |

not operated upon, No. 28397 was one of post-operative duodenal stenosis and No. 28730 left the hospital without operation. Later she reported to a neighboring hospital, still jaundiced and operation revealed stones in the gall bladder, pancreatitis, and a thickened common duct. No stones could be found in the papilla at operation, but it is fair to say the patient's condition did not admit very thorough exploration.

As stated in the discussion of Class III one would expect to find obstructing cancer when no bile was obtained by the test (Class IV). Here however is a case of proven common duct stone in which no bile was obtained. The explanation in such cases may be in the fact that through trauma from the stone the muscle fibers of the sphincter of Oddi have

is entirely hypothetical.

of this test in cases of peptic ulcer (Class V). We have placed three proven cases of ulcer in a separate chart with reports of their test find

ulcer. Case No. 27901 gave a uniformly pathological test. Dark, infected turbid bile was recovered although operation disclosed a typical, small, duodenal ulcer and the gall bladder appeared in every way normal. No explanation is available but it may be that the restriction in diet had made such a small demand for bile that the process of concentration had been going on for some time.

DISCUSSION

The brilliant conception of this procedure and the hope that its use would simplify diagnosis and treatment in a difficult field of medicine have brought it into immediate and general use. An examination of the evidence already published from many sources reveals the greatest conflict as to the reliability of the test. Lyon himself in a series of admirable papers (23, 24, 25, 26) has fully

In our experience, however they have been present when we failed to grow bacteria from the bile obtained from the gall bladder at oper-

so changed and the danger of contamination and confusion with gastric and duodenal contents is so great that any evidence based on such criteria is of no value. Rothman-Manheim (36) using peptone as a means of stimulating the flow of bile felt that the evidence obtained from a study of the cellular elements was of assistance. He points out that leucocytes are numerous in infectious conditions with cholecystitis and cholangitis and epithelial cells in catarrhal conditions. Bassler Lockett and Lutz (3) found that cells of inflammatory nature are present in all parts of the biliary tract when infection exists. In our own experience the evidence deductible from a study of the cellular element has certainly been of no value.

Our bacteriological studies have been equally indefinite. In some cases in which positive cultures were obtained from the gall bladder at operation all pre-operative test specimens were normal. Again the reverse was true and pre-operative test cultures could not be corroborated by cultures taken at operation. It is a well accepted fact that gastric and duodenal contents are in the great majority of cases sterile. The recent work of Poppens (34) in which he found bacillus coli occasionally and rarely streptococci and staphylococci agrees with other experimental studies (Cushing and Lavingood 7). Hajos (16) has shown that the degree of sterility depends on the presence of gastric acidity. Hoefert (18) for example, has recently reported that using the duodenal tube under normal conditions of health and gastric secretion, specimens of the duodenal content are usually sterile. Here again, the determining factor proved to be the hydrochloric acid of the gastric secretion. This study is merely a corroboration of the work of Aaron (1) and MacNeal and Chace (27). Garbat (15) showed that bile is usually sterile although organisms may be found in it. He attributes this to the inhibitory effect

of bile on bacteria. And Einhorn and Meyer (12) found that gall-bladder bile showed no bacteria although organisms could be demonstrated postmortem in the gall-bladder wall. Whipple (43) on the contrary found great similarity in pre-operative test findings and cultures from the gall bladder at operation. We feel however that in view of the accepted usual sterility of the upper digestive tract and because of the unusual nature of some of the organisms reported this evidence needs corroboration before acceptance.

SUMMARY

Interest in this procedure as an aid in both the diagnosis and treatment of biliary conditions has become widespread. Already it has reached the hands of the general practitioner and in spite of the difficulty of carrying through its correct performance is in actual practice by a large number of doctors. This is exceptional in a profession usually conservative and leads one to think that the many careful studies already reported which

psychic appeal any such a procedure must awaken in a patient has led doctors as well as patients into a false sense as to the real physical good this manoeuvre can give.

Following the above discussion, it is our opinion that there is much to be proven before the so-called "Meltzer-Lyon" test can be accepted as of value in aiding diagnosis, that it should still be considered as only in an experimental stage and its use should be discouraged by any except those who are qualified and equipped to study and criticize its value. It is by no means a simple test. Should one grant all that Lyon claims for it to be exact it requires X-ray apparatus much time repeated examinations on all cases, and elaborate bacteriological and cytological studies. The test depends upon the law of contrary innervation which must be proven before the test is accepted. At the present time the evidence would seem to show that syphonage is the principle factor in the deflection of bile into the duodenum. Exactly what determines the intensity of the

follows the introduction of magnesium sulphate into the duodenum. Crohn, Reiss and Radin (6) and Johnson (19) report the same findings in experiments on animals. There is here no proof of the law of contrary innervation.

Are
accurate
A study

the belief that this is the factor by which bile is obtained in this test. We base this on the facts that (1) there is no evidence of gall-bladder contraction and (2) because in several cases in which no gall-bladder bile was obtained operation failed to demonstrate any obstruction that a simple weak contraction of the gall bladder would not have overcome. In fact we did obtain bile from diseased gall bladders in which the musculature was obviously atrophied. Such gall bladders, however, were not so diseased but that they might have collapsed with syphonage. It is true that in the majority of cases

there are stimuli that cause contraction of the gall bladder. In their case it happened to be the passage of the duodenal tube. On the other hand such reports are infrequent and need further support. Knight (22) has recently brought forward the interesting suggestion that the flow of bile depends on the hypertonicity of the duodenal contents plus the mechanical action of distended neighboring organs. The part that neighboring organs, diaphragm, respiratory movements, and peristalsis play in the emptying of the gall bladder has long been a favorite theory and is fully described in the recent papers of Harter Hargis, and Van Meter (17) and Schmiedlen and Rohde (39). We accept the fact, therefore, that following the administration of magnesium sulphate bile is poured into the duodenum but have been unable to find any evidence that it is expelled by

— contractions of the gall bladder

obtained
in duct,

gall-bladder and liver bile? The separation in the test is made chiefly by visual judgment. In normal cases, as reported above,

cystectomized cases (2). In our own experience we have not found such dark bile in patients from whom the gall bladder has been removed. Rous and McMasters (38) found that in experimental animals with the gall bladder removed the bile secreted by the duct was thin and diluted. Rost (35) pointed out that after removal of the gall bladder the escape of bile was thin and continuous and Rous has denied the possibilities of the formation of a new gall bladder unless a portion of gall bladder tissue remained. Thus we can not argue in defense of the test that should dark bile appear in cholecystectomized cases, it comes from a reformed gall bladder since the division is almost always made in the region of the cystic duct. Specht's experience (41) both with dogs and man is further evidence along this line. Baseler Lockett and Lutz (2) thought the color change in these cases was due to the excess presence of oxidase. Einhorn (17) is of the opinion that the re-excretion of the magnesium salt gives the darker color. One would suppose from this that the outpouring of dark bile

—
Polymorphonuclear leucocytes are certainly more common in infected cases and in conjunction with positive bacteriological findings

color of the bile remains a question. In our opinion dark bile comes from the gall bladder and this accords with the recent work of Rous and McMasters (37) and Harer Hargis, and Van Meter (17) on the concentrating ability of the gall bladder. We have never found real dark bile in cholecystectomized cases. However the contentions of Einhorn and Meyer (12) that the dark color is due to re-excretion of the salt or to destruction of red cells in the liver with the production of excess iron or the belief of Bastler Lockett and Lutz (8) that such color is due to an increase in the amount of oxidase must bear further study.

Our own experience has left us with the distinct impression that the test is not of dependable diagnostic aid. With its use in treatment except for a few rare cases we have no experience.

The lack of unanimity in the results obtained by different investigators is the best proof of the unreliable status of this test at the present time.

CONCLUSIONS

1. The "Meltzer-Lyon" test is based upon the application of the law of contrary innervation to the biliary system. There is no proof of this at present.

2. It is our opinion that the specimens of bile obtained are the result of syphonage.

3. The test cannot be depended upon for diagnostic purposes even when accurately performed.

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| | |
|---|---|
| Lipoma simplex | 7 |
| Lipoma arborescens | |
| Type not given | 1 |
| Of the cases reported 8 are males, 1 were females, and in one the sex was not given | |

The earliest age of onset was 2 years the oldest 34. Fourteen were between the ages of 15 and 30 one was 8 one 12 one 34, and one 32.

The duration of the tumor and the symptoms varied from 1 to 19 years one case each and the average in 19 cases was 7.6 years. Sometimes this was different in the same patient in different locations. One tendon might be affected from 1 to 7 years after another had shown a tumor. A patient may be affected first on the one hand then on the other or on a hand and then on a foot. But the tumor may be located on only one extremity.

The consistency of the tumor has been variously described as soft elastic fluctuant semifluctuant, tense firm. They are not tender. Crepitation was noted in 4 cases, absent in 5 and not mentioned in 10. Fluctuation was present in 9 not definite in 1, pseudo in 1, absent in 3 and not mentioned in 4.

Disability is the commonest symptom. The function of the members controlled by the affected tendons is impeded generally because of pain. The pain may be slight or very severe. It may be absent when at rest and severe when at work. Disability or impaired function was present in 16 cases no disability in 1 and not mentioned in 2. Pain was present in 14 cases absent in 2 and not mentioned in 4.

The tumor is dome-shaped situated along the course of the tendons, and moves with them and is usually elongated in the direction of their course. The skin over it is intact, freely movable and of normal color and may carry veins that are lightly dilated.

As will readily be imagined from the description and location of the tumors the commonest pre-operative diagnosis has been hygroma of the tendon sheaths. Jalach had Sprengel's case in mind and therefore mentioned the possibility of lipoma while he made the diagnosis of hygroma. Then followed

Sender who made the probable diagnosis of lipoma. Kurts and Meyer diagnosed their cases tuberculous tenosynovitis. Deves (reported by Fossier) thought he was dealing with a case of tenosynovitis. Lambret was sure he had a hygroma with rice bodies. Kummer and Bogoluboff diagnosed lipoma as also did Földes on the author's case while the author himself thought it was tuberculous because of the absence of pain and tenderness. The fluctuations may be very distinct. In the author's case it was so definite that he attempted to aspirate first for diagnosis but no fluid was obtained nor was there any found at operation. Crepitation may be so

common. Garré thinks these growths develop more slowly than the tuberculous condition but this hardly seems definite enough to base a diagnosis on. Pain, disability and physical signs likewise are not characteristic. Therefore it may be concluded that when dealing with a tumor of the tendon sheaths, the diagnosis must rest among hygroma, tuberculous and lipoma and the last has the least chance of being the correct diagnosis because of its rarity.

The only treatment for lipoma of the tendon sheaths is ablation. In removing the growths it is necessary to remove much of the sheaths. This however causes no post-operative complication, either in healing or in function. When the tendons tunnel through the lipomatous growths, very careful dissection is necessary to avoid cutting them. The author prefers the block method of local anesthesia described by Braun. This enables the patient to aid the operator by moving the tendons at will until the motor power is also affected by the anesthetic. This, however, is lost only after the sensation is lost and returns before sensation. In the author's second operation the patient had no sensation in the back of her hand until 6 hours after the injection was made. Sometimes massage is given for a time following the operation but this is not always necessary.

The prognosis is good for complete return of function and the growths do not recur.

of tuberculosis in the tumors, microscopically. In fact, no evidence of tuberculosis has been shown in any lipoma reported and guinea pig inoculations when attempted have been negative. Gersh wrote "Under tuberculous tenosynovitis I include fungous and rice body hygroma of the tendon sheaths. Cassanella described his tumor as showing lipomatous and chronic inflammatory tissue and therefore concluded that these lipomata are the result of chronic inflammation the nature of which is not clear. Kummer noted that lipoma arborescens does not resemble a tumor but an alteration of the synovial membrane, such as an inflammation could produce that they often penetrate the tendon and associate its fibers like a malignant or fungous tumor not like a true lipoma. Therefore he concluded that they do not belong in the class of tumors, but that they are the result of chronic inflammation. He considered the cases of Isaacel and Kurz as synovitis proliferans described by Kornig and he favors the term for them. Lambert shows a preference for classing lipoma arborescens among the inflammations but does not attempt to state the nature of the inflammation causing the tumors. His case seems to disprove inflammation as a cause as the symptoms began when the child was only 2 years of age. Ilsemer quoted by Tichoff thinks them a manifestation of rheumatoid arthritis, and Tichoff himself in 1893 considered them the result of chronic inflammation of rheumatoid arthritis but in 1908 wrote that they were the result of a successful struggle of the sheaths against tuberculosis. To argue that the formation of a fatty deposit is the end result of an inflammatory process and to base those arguments upon the scanty fibrous and vascular structure which can be found is to say the least a dangerous procedure and can be in no way convincing. Moreover it must not be forgotten that tuberculous tenosynovitis is not uncommon and yet lipoma of the tendon sheaths is extremely rare. The same arthri auto lipoma in any other location. It is such a

rare disease that occupation cannot be considered a cause. Six of the patients worked hard with their hands. But as the tumors occurred also in a child of two and in young girls, work cannot be considered an etiological factor. Trauma too has not been a factor.

Lipomata of the tendon sheaths are composed of fat tissue without any evident capsule other than the sheath itself to which they are so intimately attached that the sheath must be sacrificed in removing the growth. They may be more fibrous than the ordinary lipoma elsewhere. They may contain in places more blood vessels than other lipomata, and therefore have a reddish tinge. The arborescent type consists of villi composed of very thin branching pedicles several millimeters long. Each branch bears on its end one two or sometimes three lobules of fat, 2 to 3 millimeters in diameter. There may or may not be fluid within the sheath. At times the growth may be extremely adherent to the tendon, so that part of the latter must be removed with the lipoma as in Kurz's case. The tendons may be thinned or intact. They may be completely surrounded by the lipoma or entirely free. Microscopically the tumors show fatty tissue and in places a distinct fibrous network and numerous blood vessels while in other places they present the typical picture of an ordinary lipoma. No tubercles have been found in the lipoma or the surrounding tendon sheaths.

A review of the literature shows that lipomata have occurred in the sheaths of the following tendons:

| | Times |
|--|-------|
| Extensor digitorum communis | 9 |
| Pronator teres | 4 |
| Pronator brevis | 1 |
| Extensor carpi ulnaris communis longus | |
| Extensor pollicis longus | 2 |
| Extensor pollicis brevis | 3 |
| | 4 |
| | 3 |
| | 4 |
| | 3 |
| | 3 |

1 Extensor digitorum
4 Abductor pollicis longus



Fig. 4. T. tendons of extensor digitorum communis partly diverted out of the lipoma.

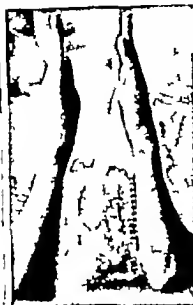


Fig. 5. Author's case after removal of lipomata from extensor tendons of both hands.



Fig. 6. Photograph taken after the hands had healed, showing the linear scars.

surface of the head of the radius. All the tumors extended upward under the ligamentum carpi dorsale which was incised part way. The wound was closed by suturing the subcutaneous tissue and then the skin. A splint was used for 6 days when the sutures were removed. The wound healed *per primam* and the patient was discharged well, May 8. The function was perfect on June 30.

was
is all
long

A subcutaneous suture only was made. The wound healed *per primam*. July 21 the function was perfect. The patient had no massage.

Both tumors were solid lipomata, in some parts a little vascular, friable, and easily stripped from the tendons. The patient helped protect her tendons by moving them when requested as the motor paralysis was not as lasting as the anesthesia. The local anesthesia lasted 4 hours at the first operation. The patient had no pain in the back of her hand until 6 hours after the injection for the second operation. On November 12, 1921 the patient was seen. The scars were firm with a tendency to keloid. The skin on the dorsum was free, the fingers moved as always, the power the same and there was

no recurrence. The tumor on the volar surface of the right wrist was not operated upon. All the tumors were solid lipomata, therefore the final diagnosis was lipoma symmetricum multiplex.

"The following is the pathological report by Dr. Sauerbeck. The largest specimen consists of one tumor measuring 2.5 centimeters long by 2 centimeters in diameter. Cuts with moderate resistance. The cut surface shows nothing but a mass of fat tissue. Four other pieces were present which were

calous

Diagnosis Simple lipoma

The following are the cases reported in the literature in chronological order.

CASE 1. Pothoff's case published in 1885 and



Fig. 1. Lipoma of tendons sheaths on dorsum of back hands and olecranon surface of right



Fig. 2. After removal of lipoma from tendon sheaths of dorsum of left wrist



Fig. 3. Right hand. Swelling due to lipoma of tendon sheaths

The author's case was a female domestic age 27 single born in the United States. Her family history was negative. Her past history was negative except for sore throats and occasional colds. Her menstrual history was normal. She presented herself April 25, 1931 because of a lump on the back of each hand. She wanted these growths re-

moved. Four months ago she had visited her doctor on account of these swellings because they were unsightly. And he thinking they were caused by an inflammatory condition in the wrist advised her to have her teeth examined with a new

upper edge of the carpus two-thirds the distance downward over the second, third, and fourth metacarpals with prolongations over the extensor tendons of the thumb. The tumor on the right hand measured 6 by 4 centimeters that on the left was a little smaller. Running transversely across the tumor near the middle was a depression. The skin over them was movable and normal in color with dilated veins. The tumors are soft fluctuant. No crepitation and no distinct edge could be felt. There was no increase in local temperature, no pain, no tenderness. The tumors moved with the tendons. On the right wrist there was also a swelling small but with similar characteristics on the volar surface just under the palmaris longus and between the ends of the radius and ulna. April 29, 1931, after hygroton aspiration was attempted on the tumor of the left hand but no fluid could be drawn. The diagnosis then rested between lipoma and tuberculosis of the tendon sheath. On May 8, 1931, by Braun's block method with 3 per cent novocaine the tumor on the dorsum of the left hand was excised. An incision 5 centimeters long over the middle of the tumor was made the sheath incised, and the fat tumor exposed. It was found to surround the tendons so that it looked as if the tendons had tunneled through. The tendons so involved were the extensor digitorum communis, extensor indicis proprius, extensor digiti quinti

enlarged, but she had no hyperthyroid signs or symptoms. Her heart and lungs were negative. The only other positive findings were the nodes on her two wrists. On the dorsum of each wrist was an irregular lobulated swelling extending from the

pain for some time in fingers of right hand which had now become weaker. She could not use it well for her work. Gradually there developed a tumor on the back of this hand close to the wrist. When first noticed it was the size of a pigeon's egg, elongated, sharply outlined, not definitely fluctuant, and followed somewhat the movements of the extensor tendon of the middle finger.

Diagnosis of hygroma was made. Aspirated,

three middle fingers. There was no crepitation, no tenderness. Probability of tuberculosis was considered.

Operation under cocaine. Lipoma found surrounding the extensor tendons of the three middle fingers. In haste the operator knicked the tendons in several places in freeing the tumor. The extirpated mass was two handfuls of large and slender villi of fat and connective tissue.

CASE 6. R. Jalach, May 16, 1888, extirpated tumor of tendon sheath. Patient 3 years old, active, healthier always well except for present condition of feet. At age of 6 months noted hard tumor growing on dorsum of right foot. And a softer one on left foot of 3 months duration. Grew along course of great extensors. Inflamed 3 days before amputation.

Left. After the inflammation subsided examination showed a longitudinal tumor which extended from base of first metatarsal along the course of the ten-

to 5 centimeters. There was fluctuation and soft crepitation. Surface was smooth, skin movable over the tumor and the tumor movable over the bone. Attached to extensor tendon of great toe the function of which was impeded and painful. The relatively rapid development and repeatedly in-

1054 metatarsal. Base of the tumor was hard and connected with the bone; the upper part very which the extensor hallucis moved, felt soft and semi-fluctuant. Considered exostosis with formation over it of ganglion.

Operation on left foot. Tendon sheath opened, fluid escaped. Therefore tumor had developed

1055 soft in consistency but firmer in center.

Microscopic examination. Fat tissue infiltrated with connective tissue. Therefore fibrolipoma with inflammatory reaction.

Operation on right foot. Exostosis fused into the soft fat tumor and was removed together with the tumor which was adherent to the lateral wall of tendon sheath of extensor hallucis.

CASE 7. Paul Sender's case. On July 20, 1888, girl of 14 years, poorly developed, noticed that a tumor on the back of her left hand of 18 months duration was gradually growing. No pain until re-

second, third, and fourth fingers about 2 centimeters wide. Skin over it normal and movable.

Probable diagnosis. Lipoma.

Tendons of three middle fingers surrounded by lipoma. Yellow fluid in sheath. No evidence of tuberculosis. November 6 patient died of rapid

ly. At times, especially with change of weather patient noticed some pain at edge of tumor and also weakness in elbow and shoulder. One year later he noted a swelling on analogous place on right wrist.

but presenting a crepitation which accompanied the movements of the extensor tendons of fingers. The tumor was divided by a transverse furrow into anterior and posterior parts. It was movable on underlying tissue. Movements of hand and fingers free. Hand closed firmly enough. Right hand same

1056

Operation on September 21, 1893. Incision over extensor tendons from anterior edge of metacarpals to within 1 centimeter of ligamentum carpi dorsale. Sheath incised, little yellow viscid, transparent fluid escaped. The inner surface of the sheath and tendons themselves were covered with lobulated vegetations resembling fat. Sheaths extirpated completely and tendons cleared. Tendons found thin in places. Tendons involved were extensores digitorum communis proprius indicis, and minimi quatuor. Same operation and findings on other hand.

Gross Pathology. Growths distinguished from ganglions under the nail plates. Per- and very lobule so measuring

CASE 2. Haumann's case. A cooper age 27

before admission, another attempt was made to remove the tumor by incision. This failed and the doctor said it had become hard and must be excised. Therefore admitted. Examination showed on the left hand a tumor just below wrist and extending downward, reaching the middle of the third and fourth metacarpals. It was raised and fit measured 4 by 7 centimeters. Movement of tendons moved the tumor somewhat. Skin over tumor was movable and color unchanged. The tumor had a soft

what softer in consistency. It was about 2 by 2 centimeters. Diagnosed hygroma. Operation. Left incision 8 centimeters. Sheath of extensor digitorum laid bare and incised. There flowed out a light

surface was smooth. Microscopic examination showed fat cells and connective tissue carrying

digitorum communis longus muscle. Movements of ankle joints were somewhat restricted. There was no tenderness, crepitation or fluctuation.

sheath was opened and fat tumor was exposed extending from the muscle substance of the peroneus brevis. Its insertion into tubercle of fifth

recurrence in 1 year. Sprengel considered that these lipomata originated in the fat lobules of the mesotendon.

CASE 3. Hirschel case. Lipoma arborescens. A cabinet maker 53 years of age. Onset 3 years ago with pain in left index finger. Gradually all the fingers of the left hand were affected and at the same time a moderate swelling of the flexor tendons of the fingers was noted. The swelling varied in

The same sensation was obtained on the tendon of the extensor pollicis longus although no tumor could be palpated. On the right hand there was repeat too at the first phalanges of the fourth and fifth fingers. Function was good in these fingers but the strength was diminished in the fingers of the left hand.

Diagnosis of hygroma was made.

Operation. An incision was made from the middle of first metacarpal to the anterior edge of the dorsal carpal ligament on the left hand. The sheath of extensor pollicis longus was opened. A truss fluid escaped. The growth was exposed and found to extend upward to where the extensor radialis longus crossed. The tumor extended along the latter tendon too. Similar growths were removed from around the flexor

of the tumor

Microscopic examinations showed fatty tissue a
vessel
Gibber
cancer a

questioned about the onset of the trouble she said that 3 years before she was suddenly taken in the night with very bad pain in her fingers. These pains which lasted about 2 hours never recurred. Only after this occasion she noted that her forearms were less strong. At the same time there appeared little by little a small tumor above each wrist.

Exam. natum. To the right, on the dorsal side of each forearm, or 3 centimeters from the radio-carpal articulation, one noticed a small hemispherical tumor the size of half a nut. On palpa-

Operatio. Several treatments having been applied without result an operation was performed by Dr. Dees February 3, 1895. An incision of about 4 centimeters made on each forearm laid bare a little lipoma the size of an almond surrounding completely the tendon of the extensor radialis brevis. The left one slightly larger was clearly

and recovery were uneventful. Patient completely well February 3, 1895.

CASE 10. Lambert's case. Patient age 8 years. February 19, 1902 complained of tumor of back of right hand. Tumor situated on course of common extensor tendon, united with them and elongated parallel with them. It occupied the inner half of back of hand corresponding to third, fourth and fifth fingers. It first appeared at the age of 2 and

also movable. There is fluctuation but no crepitation. Child has always been healthy. Family

no one coming the tendons were removed piecemeal. Tendons were gradually cleared. The sheaths with the same operations were removed where accessible. Healed per primam.

CASE 11. W. Meyer's case. February 10, 1897 presented before New York Surgical Society. A woman age 45 operated on in 1892. Removed tendon sheaths of extensor tendons of both forearms for

what was supposed to be tuberculosis but which proved to be lipomatous masses. The tumor had been present 14 years on left wrist and 11 years on right. Flexion of second and third fingers on both hands was impossible because of the growth. Patient showed evidence of former tuberculosis of cervical glands and of arthritis sicca. By 1894 function was completely restored (Author's note this case was reported in brief as above in the reference given, and no farther information could be obtained from Dr. Meyer).

CASES 12 and 13. Marburg cases reported by Pancreus 2 cases. (a) 34 years old. First Lieutenant. 10 years ago he was afflicted with ulcers made which healed rapidly and later into which healed under mercury treatments. At age of 15 noticed swelling on back of right hand and volar surface of little finger. In 1881 this was aspirated and

came to Marburg surgical clinic.

Emission. showed fluctuating swelling in tendon sheaths on back of both wrists over third metacarpophalangeal joint in flexor tendon sheaths of the middle finger and in region of first phalanx. Left elbow both sides of triceps tendon. Supination, flexion, and extension limited. Right shoulder in front of joint extra-articular showed crepitation. No limitation. Both knees showed enormous amount of fluid and crepitation. Extension complete and flexion nearly so. No pain. Definite diagnosis not made. Prepared for operation.

Operation. November 7, 1893 left knee opened. Piece of membrane excised for diagnosis. Mairchard reported reddened, swollen synovial membrane with fat tissue. Puncture of the right knee joint

1893 left
Incised
with villi
ance was

opened, villi removed consisting mostly of fat. December 13 wounds healed. Joints had no fluid and movement was as before. Incised left subdeltoid bursa, finding large wall studded with villi, very hyperemic, 20 rice bodies. Incised tendon sheaths on back of left hand. Tendons surrounded by diffuse lipoma which arises from the thickened tendon sheaths. Excised. Also osteophytes on edge of joint surface of wrist. January 3, 1894, right knee which had rodiform and glycerine injections was badly swollen. A pound of villi consisting of fat was removed. January 30, incision on dorsum of right wrist was made. Inside the tendon sheaths fat

was made. Fat with around the

TABLE I.—CASES FROM THE LITERATURE

| Surgeon | Age | Duration of Symptom | Location of Tumor | Consistency | Fluctuation | Time in Pelvis | Direction | Size | Mobility | Preoperative Diagnosis | Incision | Find | Treatment |
|-------------|------|---------------------|-------------------|--------------|-------------|----------------|-----------|------|-------------------|------------------------|-----------|-----------------|--|
| Perle | F 38 | | Lt. ad. | | | | | | | | | | Tumor removed |
| Herman | M 27 | 2 yrs | Rect. 1st seg. | Soft elastic | + | + | + | + | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision of uterus |
| Springer | F 38 | 3 yrs | Rect. 2nd seg. | — | — | — | — | — | Diagnosed as such | Hypertrophy | Lap. deep | None | Peritoneal incision 1st seg. 1st seg. 1st seg. |
| Harshbarger | M 31 | 3 yrs | Rect. 2nd seg. | Firm | — | + | + | + | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Kerr | F 46 | 3 yrs | Rect. 2nd seg. | Firm | — | + | + | + | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| McClure | M 27 | 2 yrs | Rect. 2nd seg. | Soft | + | + | + | + | Marked | Hypertrophy | Lap. deep | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Boyd | F 37 | 2 yrs | Rect. 2nd seg. | Soft elastic | — | — | — | — | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Kennedy | M 27 | 2 yrs | Rect. 2nd seg. | Soft | — | + | + | + | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Frank | F 27 | 2 yrs | Rect. 2nd seg. | — | + | + | + | + | Marked | Hypertrophy | Lap. deep | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Lambert | F 35 | 3 yrs | Rect. 2nd seg. | — | + | + | + | + | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| McGee | F 38 | 2 yrs | Rect. 2nd seg. | — | — | — | — | — | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Pratt | M 27 | 2 yrs | Rect. 2nd seg. | — | + | + | + | + | Marked | Hypertrophy | Lap. deep | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Todd | F 38 | 2 yrs | Rect. 2nd seg. | — | — | — | — | — | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| MacLeod | M 31 | 2 yrs | Rect. 2nd seg. | — | — | — | — | — | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Harshbarger | F 27 | 2 yrs | Rect. 2nd seg. | — | — | — | — | — | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Condon | F 38 | 2 yrs | Rect. 2nd seg. | — | — | — | — | — | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Roberts | M 38 | 2 yrs | Rect. 2nd seg. | — | — | — | — | — | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |
| Waller | F 27 | 2 yrs | Rect. 2nd seg. | — | — | — | — | — | Marked | Hypertrophy | Lap. inc. | 1 cent. pedunc. | Extensive excision 1st seg. 1st seg. 1st seg. |

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SPLENECTOMY IN BANTIS DISEASE THIRD STAGE

WITH REPORT OF TWO CASES ONE WITH POSITIVE WASSERMANN DUE TO JAUNDICE¹

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SPLENECTOMY as a therapeutic procedure in itself needs no comment nor voluminous writings to lend support to it for enough cases are on record to show that it has a distinct clinical basis of value and has come to be recognized as a common surgical procedure. Its scope has been widely extended of late however as can readily be seen by an analysis of the conditions which have become amenable to removal of the spleen.

W. J. Mayo in summing up splenectomies for all causes in the Mayo Clinic up to January 1 1921 analyzed 249 cases with a mortality of 10 per cent. Seventy-one cases were for splenic anemia of unknown origin, with 9 deaths. 38 cases were for splenic anemia of known origin among which were 11 cases of chronic sepsis following systemic infections due to septic arthritis, tonsillitis, phlebitis and osteomyelitis. The operative mortality in these cases was 27.3 per cent the remainder being cured or greatly relieved. Six spleens were removed for chronic syphilis, with a mortality of 16.6 per cent. Eight spleens were removed for splenic anemia in children and von Jacksch's disease with no deaths. 11 for portal cirrhosis with 4 deaths. 32 cases for hemolytic jaundice. 6 for primary biliary cirrhosis. 27 cases for myelogenous leukemia after proper preparation by irradiation. Improvement in these

latter cases however was only temporary. Thus it is seen that a splenomegaly can be

is indicated when the splenomegaly is secondary, then that same indication exists with added emphasis when the spleen can be shown to be the primary disturber.

As for splenectomy in the syndrome commonly called Banti's disease especially in the terminal stage marked by ascites, cirrhosis of the liver, intense jaundice and enlarged spleen one becomes quite surprised as he looks over the past records by the remarkably few numbers of cases which have found their way into print, whether or not they resulted in recoveries.

Sweetser in an admirable summary was able to collect only 42 cases reported in the past 30 years, in which spleens were removed when complicated by ascites and enlarged liver. Due to the meagreness of some of the

cluded in his summary 7 cases of primary cirrhosis of the liver with ascites, 3 of syphilis with cirrhosis and ascites, 1 of splenic and portal thrombosis with enlarged spleen and ascites, and 1 of primary lymphosarcoma of the spleen with ascites. Thus of the 42 cases

extensor

A 20 year old girl. Family history negative. In 1893 at the age of 16 she noticed pain on outer side of left leg. No known cause. Rice bodies were found in knee and 20 cubic centimeters of fluid were aspirated. In 1894 swellings on both

and therefore she sought relief. She presented a tumor

Diagnosis Tendonous tenosynovitis of extensor digitorum

Operation At time

granulation tissue. Because of the findings of lipoma and

such a tumor was 4 centimeter lump and was of finger in thickness. Hygroma to popliteal space found.

CASE 14. Eickhoff case. Was 5. Onset five years ago with slight swelling on volar surface of both wrists. These grew steadily. One year later noticed pain. Both knees joints which were at times. On volar surface of right wrist there was a knibulated swelling 5 centimeters long extending up the forearm from the head of the metacarpus. It measured 30 by 8 centimeters. The

ligament and extensor pollicis brevis. It ruptured. Wound healed per primam

excision of

was 3 centimeters thick

was 20 years old. In hospital which was under the microscope proved to be tuberculous. Therefore this case is excluded from consideration in this review.

CASE 16. R. Casanovello case. A 36 years old woman. As a child she had chronic inflammation of cervical glands and catarrhal pharyngitis. Onset of present illness 10 years ago with fever and profuse sweats that lasted about 10 days. Then

wrist. This too came and went before it remained permanent. The pain also became so severe in the past year that she could not do her work.

Examination. The tumor extended over the extensor digitorum communis tendons up to the ligamentum carpi dorsale and measured 2.5 by 6.5 centimeters. There was an additional swelling on volar surface of right wrist in region of flexor digitorum communis.

Diagnosis. In all probability hyponatremia.

Operation. Cocaine anesthetic. Lipoma removed. Sheath widely distended. The tumor which grew from proximal wall.

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Fig. 1. Case 1, low power



Fig. 2. Case 1, high power

splenectomized for Banti's disease and likewise the longest lived. The patient is still alive after 23 years and occasionally has an attack of haematemesis but seems to be free from ascites. In spite of this splendid result Cushing himself is not so sure as to how much relief he gave the patient and advises caution in judging the ultimate results of splenectomy.

Banti's disease although it has periods of quiescence will eventually terminate in death usually due to intercurrent haematemesis. What splenectomy really does for the

of the onset and course of their disease both distinctly felt pain and tumor mass in the

more. Previous examinations of these two men made many times by competent clinicians always resulted in the same diagnosis, the spleen alone being found enlarged. After a very thorough investigation in all branches, no etiology was found that could explain the clinical and laboratory findings, and after complete abdominal exploration the causative factors are still unexplainable.

CASE. Mr P. G. entered the National Military Hospital, June 27, 1921. Age 24, single, white, machinist by trade. The father and mother are living and well. Four brothers are living and well. No brothers or sisters are dead. No family history of tuberculosis, cancer, insanity or alcoholism. No diphtheria, scarlet fever, pneumonia, influenza, pleurisy, malaria, typhoid, or tuberculosis. Cardio-respiratory and gastro-intestinal systems have been negative up to the present time. Denies venereal disease by name and symptom. Enlisted in service

of toxic material from the general circulation, but also reduces the portal circulation about 25 per cent and the ultimate result of the operation depends upon whether or not the liver has sufficient cells to carry on its function.

Hence after all is said and done to ascertain actually how beneficial splenectomy really is in these conditions it is absolutely necessary that every case so diagnosed should be reported in great detail, that others may deduce how much stress to place upon this procedure. This is my only excuse for reporting the two following cases.

splenomegaly, ascites, etc. In both cases the patients were of more than average intelligence and gave a detailed description

of the onset and course of their disease both distinctly felt pain and tumor mass in the more. Previous examinations of these two men made many times by competent clinicians always resulted in the same diagnosis, the spleen alone being found enlarged. After a very thorough investigation in all branches, no etiology was found that could explain the clinical and laboratory findings, and after complete abdominal exploration the causative factors are still unexplainable.

analysed, we can deduct 12 as of known etiology and have remaining, 30 cases of splenectomy which presented unknown etiology enlarged liver and spleen and ascites. As for the immediate mortality before 1908, in 11 reported cases it was 72.7 per cent from 1908 to 1913 in 16 reported cases the mortality was 50 per cent and in the above 43 cases, the mortality was further reduced to 26.5 per cent thus giving the patient three chances out of four. When one realizes that the disease is 100 per cent fatal, the operative risk must be considered remarkably low. As to the end results of these cases, 55 per cent of those who survived operation lived and remained in good health for more than 15 months and may be considered cured.

Banti's disease as seen clinically usually presents the picture of enlarged spleen gastric hemorrhages, a complicating portal cirrhosis, ascites, then death. As to the cause, at present it is a hypothetical question, and the very absence of known etiology stamps the syndrome as a very difficult one to differentiate from several other splenomegalic conditions suffice to say that if there is a history of primary splenomegaly before liver enlargement together with the other symptoms mentioned above then one may safely assume that he has to do with a Banti's disease or primary splenic aneurysm as some prefer to call it.

Pathologically the typical blood picture

new element being an increase in the connective tissue the capsule is slightly thickened

FUNCTION OF NORMAL SPLEEN

The function of the normal spleen certainly is not one necessary to the well-being of the individual for no untoward effects have

corpuscles. It has been supposed to be an organ for the destruction of the red blood corpuscle. It has been suggested that the spleen is concerned in the production of uric acid. Jones and Austrian have shown that the spleen contains the enzymes adenase, guanase and xanthin oxidase which act upon the split products of the nucleins and convert them into uric acid. Lee and Minot contend that a diseased spleen inhibits normal bone marrow function, and the removal of such a spleen removes this inhibition stimulating this bone marrow function that it stimulates all lymphatic tissue that it causes the red blood cells to be more resistant to haemolysis, and that they become less fragile. Maurizio Bufalini, investigating the number of bacteria in bile after splenectomy in animals, found fewer organisms than in normal controls. Ten days after operation, there were fewer organisms circulating in the blood than before operation. In spite of the trauma inflicted there is increased resistance in young animals, and the red blood cells are increasingly resistant to hypotonic salt solutions.

RESULTS OF SPLENECTOMY

After splenectomy there is a loss of iron from the body which would lead one to believe that the spleen functions in some manner in the regulation of metabolism either in iron conservation lost in blood destruction or in the manufacture of haemoglobin, or in the formation of the red blood cells. Changes following removal of the spleen for chronic conditions are less marked than those resulting from removal of apparently healthy spleens due to acute conditions as traumatic rupture probably due to the fact that in chronic cases compensation for lost splenic function is gradually being built up so that further changes after splenectomy are less noticeable. The chief changes are enlargement temporarily of the lymph glands, development of new haemo-

with blood perhaps the most famous, being at the same time the first case in this country ever

certain types of jaundice will give it. Nevertheless it is a fairly common clinical observation and it must be admitted that we

Am MD FACS and Colonel Mattison MD FACS only served to strengthen our conviction. Subsequent events proved that we were correct.

Operation. Splenectomy was performed July 8.

Type 1. The gall bladder was big and the spleen was dark red in color, edges smooth, surrounded by adhesions and filled half of the abdomen. The adhesions were thickest about the gastrosplenic omentum, and in denuding the gastric area, a raw surface was left. The spleen measured 25 by 12 by 3 centimeters and weighed 1163 grams.

Pathol. gical Report. Section of the spleen shows marked increase in fibrous tissue and marked congestion of the sinus which were tremendously dilated. There were no malpighian corpuscles visible.

drop. The temperature for the first 3 days ranged from 99.1 to 100.2 then fell to normal and remained there. His convalescence from that point on was entirely normal, and in 14 days he was out of bed. Blood examination at this time showed:

| | |
|--------------------------|-------------|
| Hemoglobin | 90 per cent |
| Red blood cells | 5,000,000 |
| White blood cells | 8,200 |
| Poly morphonuclears | 54 per cent |
| Large mononuclears | 25 per cent |
| Small mononuclears | 20 per cent |
| One reticulated red cell | |
| Wassermann | 3+ |

Fourteen days after operation he weighed 110 pounds. He remained with us 3 months and upon leaving his weight had increased to 131 pounds. Blood examination was as follows:

| | |
|---------------------|-------------|
| Hemoglobin | 75 per cent |
| Red blood cells | 3,000,000 |
| White blood cells | 9,200 |
| Poly morphonuclears | 40 per cent |
| Large mononuclears | 5 per cent |
| Small mononuclears | 7 per cent |
| Eosinophils | per cent |
| Wassermann | 1+ |

The patient had not had any antisyphilitic treatment since entering the hospital. His jaundice had

entirely cleared up by this time, the liver border extended 2 centimeters further down than before operation, no ascites present.

By request the patient reported back to the hospital 3 months after discharge. His general health had in the meantime been excellent. He secured a position as manager of a county fair, drives his own automobile and works 8 hours

| | |
|---------------------|-------------|
| Red blood cells | 4,400,000 |
| White blood cells | 9,600 |
| Poly morphonuclears | 48 per cent |
| Large mononuclears | 22 per cent |
| Small mononuclears | 27 per cent |
| Eosinophiles | 3 per cent |
| Wassermann | negative |

He has not had any hematogenous epigastric discomfort, or pyrosis since operation. His appetite is excellent, he sleeps well, and carries himself with the utmost of comfort.

November 1931. General condition excellent. No symptoms of any nature.

| | |
|---------------------|-------------|
| Blood | |
| Hemoglobin | 90 per cent |
| Red blood cells | 5,096,000 |
| White blood cells | 9,800 |
| Poly morphonuclears | 44 per cent |
| Large mononuclears | 22 per cent |
| Small mononuclears | 26 per cent |
| Transitionals | 2 per cent |
| Eosinophiles | 5 per cent |
| Wassermann | negative |

| | |
|---------------------|-------------|
| January 6 1932 | |
| Blood | |
| Hemoglobin | 80 per cent |
| Red blood cells | 4,760,000 |
| White blood cells | 5,800 |
| Poly morphonuclears | 26 per cent |
| Large lymphocytes | 55 per cent |
| Small lymphocytes | 12 per cent |
| Transitionals | 3 per cent |
| Eosinophiles | 2 per cent |
| Basophiles | 1 per cent |
| Wassermann | negative |

His weight is now 142 pounds, no jaundice, ascites, or hemorrhages. Liver 4 centimeters below. Slight epigastric tenderness at times.

It will be agreed, I believe, that as far as the period of observation goes in this case it can be regarded as an apparent cure. I say apparent, because I do not believe that 6 or 7 months observation in a condition of this kind should warrant one in drawing a definite conclusion. Personally I feel that reports of all such cases should be published.

intensive syphilitic course including salvarsan injections and mercury by mouth. He palpated his own abdomen daily and noticed the gradual increase in the size of the mass on the left side. One year after this he felt a dragging sensation of pain

noticed, and after his discharge, he was still not treated by his family physician. Both masses gradually increased in size, but the pain now disappeared.

Three months ago, while receiving an intravenous

umbilicus flattened. The veins of the abdomen are prominent. Fluid wave and shifting dullness

felt 3 centimeters below the costal border. The genitalia show no signs, lesions, or hemorrhoids. The reflexes are present and normal. Muscular system negative. Rectal examination negative.

Laboratory findings

| | |
|----------------------|-------------------------|
| Blood | |
| Hemoglobin | 60 per cent |
| Red blood cells | 3,700,000 |
| White blood cells | 3,300 |
| Polymorphonuclears | 63 per cent |
| Small mononuclears | 34 per cent |
| Large mononuclears | 2 per cent |
| Nucleated reds | per cent |
| Platelets diminished | coagulation time 4 min. |
| Wassermann | 4+ |
| Blood group | B ₂ O |
| Sugar shows a strong | amylaceous |
| and poliofectious | N bile |

Urine: Clear, dark, amber specific gravity 10; no albumin, sugar or sediment. Bile present.

Feces: Stools dark brown, well formed, no ova or parasites. No gross or occult blood.

Diagnosis: Bilious disease

In spite of the positive Wassermann, we felt that we were dealing with a case of Banti's disease and not one of syphilis. A positive Wassermann in the presence of jaundice is not of great significance, and it has been within nearly everyone's experience to encounter this. Consultation with the genitourinary department resulted in the same opinion for they felt that a persistent 4+ in the face of intensive syphilitic treatment could hardly exist without any other external stigmata or symptoms of syphilis. R. C.

posterior. Diminished breath sounds, diminished tactile and vocal fremitus over this area. No rales. Point of

of good volume and tension. Blood pressure 100-80. The abdomen is full, round, protuberant, the

cells which in turn set free antigens which fix the complement giving a false positive and may continue to do this long after the jaundice has cleared up. If this is so it is very difficult to explain why every case of jaundice does not give the false test. Why only

Operation. Splenectomy was performed June 28 1931. On opening the abdomen, large quantities of fluid escaped. The liver came down to the costal border, was very cirrhotic and deformed. The spleen filled the entire left half of the abdomen, was adherent to the surrounding structures and was removed with great difficulty. The patient left the operating room in shock, was immediately transfused with normal saline in gum arabic, and given fluids by rectum. Twelve hours later he suddenly became pulseless and died. Postmortem examination was refused. Size of spleen was 27 by 13 by 4 1/2 centimeters and weighed 1255 grams.

SUMMARY

1. Splenectomy has come to be a common surgical procedure, and is now indicated in any condition characterized by splenomegaly with or without enlargement of the liver and ascites.

2. Splenectomy in Banti's disease affords the only means of relief or cure. Judgment as to its ultimate value in this condition should be cautious until sufficient number of cases are on record with adequate follow-up reports, and with this in view a plea is made for detailed reports of all cases so diagnosed.

3. A summary of the literature of the past 30 years shows thirty cases reported in which the etiology was unknown.

4. Two cases of Banti's disease in the terminal stage are reported, one case giving

a positive Wassermann which was due to jaundice, and which resulted in an apparent cure after splenectomy the patient being free from all symptoms six months and one week, after operation.¹ One case died 12 hours after operation.

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CANCER OF THE PROSTATE

A COMPARISON OF RESULTS OBTAINED BY RADIUM AND SURGICAL TREATMENT

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Section on Urology, Mayo Clinic

IN order to form a judgment of the results following the use of radium in the treatment of malignancy they are usually compared with those formerly obtained by surgery the unit of measure being the number of patients who have lived free from symptoms an arbitrary number of years after treatment. Such a method of comparison allows a wide margin of error unless the patients treated by radium are in approximately the same general condition as those treated by surgery. Obviously this is seldom the case radium has a greater field

of application than surgery as it is often employed when the general condition of the patient or the extent of the disease would not permit surgery. This fact not only renders accurate comparisons difficult, but is the greatest single factor in the development of false ideas regarding radium therapy. This is particularly true in cases of cancer of the prostate since in 28 per cent there is metastasis to the bones when the patients are first examined. A large number of others have glandular metastasis or evidence of considerable local extension many are so old or



FIG. 3. Case 1, low power



FIG. 4. Case 1, high power

as soon as possible and for that reason I have recorded this a little earlier than is customary. A further history of this case will be published in conjunction with another case of Hant's disease now in the ward.

The second case reported here unfortunately did not terminate so happily as the previous one. His condition had gone on so far that paracentesis was necessary every 4 or 5 days, every one of which necessarily weakened him still further. He was a very poor operative risk and it might be argued that poor judgment was shown in subjecting to operation at this stage. This point was the subject of a heated discussion at a staff meeting and it was felt that if left alone he had absolutely no chance, and humanity alone decreed that he was entitled to whatever chance operation afforded, meager though it was. The entire matter was explained frankly to the patient who was quite an intelligent person and he gladly accepted the last opportunity to attempt to check his malady.

CASE 2. Mr. R. C. I. entered the National Military Hospital June 15, 1918. Age 37, height 67 inches, normal weight 65, now 40. Pulse 84, of fair shape and tension. Respiration 20. Temperature 98.5°. The family and past history are unimportant. Patient felt perfectly well until 4 years ago at which time he noticed a large mass on the left side of the abdomen. For some

months ago he vomited about 3 pints of blood, and after this remained in bed for 3 weeks. Two months after this hemorrhage his abdomen be-

came

The abdomen was full, round, with umbilicus flattened. The abdominal veins were very prominent. Large fluid wave and shifting dullness were present. Further palpation was impossible.

swelling. This mass moved with respiration. Liver palpable, central to below costal border.

Blood counts:

| | |
|--|-------------|
| Hemoglobin | 50 per cent |
| Red blood cells | 2,700,000 |
| White blood cells | 3,700 |
| Polymorphonuclears | 62 per cent |
| Small mononuclears | 36 per cent |
| Large mononuclears | 2 per cent |
| Platelets diminished | |
| Smear shows achromia, anisocytosis, and poikilocytosis | |
| Wassermann | negative |
| Conglutination | 6 minutes |
| Group | A |

The urine was acid, dark brown, 0.24 to 0.30 albumin.

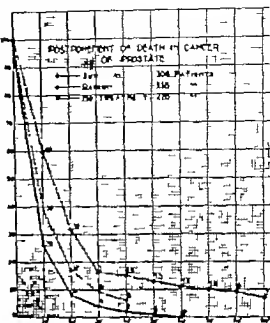
went on this way for 3 years, when he became troubled with dull epigastric pain. Eighteen

of kind similar to that of the

simulate the normal type and occur irregularly dispersed throughout a fibrous tissue stroma.

In order to compare results of operation with those obtained by the use of radium, all the surgical cases irrespective of the extent of malignancy at the time of operation or the method of operation, should be placed in a single group. Thus 124 patients with partial prostatectomies for carcinoma are compared with 152 treated by radium. The 124 patients comprise all those operated on, irrespective of the extent of the malignancy or the amount of malignant tissue removed and the 152 patients treated with radium represent all forms of radium treatment administered in all stages of the disease except when metastasis was demonstrable.

In making such a comparison it must be remembered that most of the operative work had been done more than six years before while the radium treatment had all been given in the last six years. Therefore, greater length of life has been afforded patients treated surgically than those treated by radium. Moreover during the first half of this six year period radium therapy was largely in the experimental stage and as yet has not wholly emerged from this stage. Only during the past three years have patients been wisely selected and adequately treated with radium. Formerly it was believed that radium applied over the surface of the prostate either in the rectum or urethra was sufficient and failure was attributed to inability to penetrate the mucous membrane with sufficiently large doses. To overcome this obstacle needles containing radium were inserted through the perineum directly into the growth and large doses were given. This resulted in necrosis and sloughing around the needles but the periphery of the gland received but scant radiation. In order to radiate the



radiation is directed becomes as important as the dosage. It is only during the past three years that this fact has been recognized, and the end results are not yet demonstrable as are those of surgical procedures instituted

six years before. Moreover patients treated by surgery represent a picked group whose physical condition permitted major operations while those treated with radium represent very poor risks, and many would not now be given the radium treatment. Therefore, any but a very marked advantage in results in the surgical group may be attributed to the more favorable general condition of such patients. If it is considered that the patients who died are completed cases 106 such patients in the surgical group and 118 in the radium group are dead. In the surgical group the average length of life was twenty-one and sixty-seven hundredths months, in the radium group twelve and thirty-six hundredths months. This difference of approximately ten months in favor of the surgical cases is apparently owing to the better physical condition of the patients at the time of operation rather than to the results of surgery. Successful surgery should have prolonged life more than ten months beyond the average for radium treatment. In the surgical group 69 per cent died during the first two years in the radium group 83 per cent, a difference of 14 per cent in favor of surgery attributable to the same cause.

in such poor physical condition that death is

(2) I called attention to the fact that radium treatment is recommended in less than 50 per cent of patients with carcinoma of the prostate who are examined at the Mayo Clinic. Until routine yearly physical examinations, such as are conducted by the life extension institutes, become more general I doubt that this disease will be discovered in time to institute early treatment for carcinoma of the prostate often becomes very extensive and even metastasizes before urinary symptoms call attention to its presence.

Before 1915, when radium was first used in operations were similar to those performed at that time for benign hypertrophy. The so-called radical operations which often damage the sphincters of the bladder to some extent were not attempted because the resulting incontinence usually caused greater distress than the malignant condition. Since 1915 only patients in whom the malignancy was so slight that a definite diagnosis could not be made have been referred for operation. They were advised to have operations rather than radium treatment in the hope that if incipient cancer were present it might be removed completely.

Besides the patients on whom operations were performed before and after the advent of radium there were those in whom malignancy was not suspected until discovered by the pathologist after the removal of a supposedly benign gland. These patients, and those operated on because of suspected

suspected would obtain better results from surgery than those in whom the neoplasm had progressed so that the diagnosis was beyond question. Nevertheless, there is little difference in the final results in the two groups. In the advanced cases, 35 per cent of those who died succumbed within the first year while in the early cases 34 per cent of those who died succumbed the first year. The average length of life of patients in the first group was twenty-six and sixteen hundredths months following operation, of the second group twenty-seven and twenty-eight hundredths months. In both groups only 9 per cent of those who died had lived more than three years.

The mode of operation would not seem to be a factor in results, as the perineal and suprapubic operations were employed about equally in both groups. There were twenty-three perineal and forty-five suprapubic operations in the first group and twenty-two perineal and thirty-four suprapubic in the second group. A reclassification according to the method of operation indicates slightly

twenty-five and seventy-eight hundredths months. Seventy-one per cent died during the first two years. The average length of life of the seventy-nine patients who had suprapubic operations was twenty-eight and eighty-five hundredths months. 66 per cent died during the first two years. Eleven per cent of the first group and 30 per cent of the second group lived more than three years. It would seem therefore, that neither the method of operation nor the extent of the malignancy up to the point of operability is the determining factor in the results obtained.

I have called attention to the fact that microscopic findings of the relative degree of malignancy is the determining factor in the prognosis. If the malignant cells are partly differentiated are fairly regular in size and shape, and retain the characteristic, long

cases I were well in this group.

It would naturally be supposed that patients in whom early malignancy either escaped detection completely or was only

LEUCOCYTOSIS FOLLOWING GYNECOLOGICAL OPERATIONS

REPORT OF 50 GYNECOLOGICAL CASES, WITH RECORD OF INTERVAL POSTOPERATIVE LEUCOCYTE COUNTS¹

BY R. A. SCOTT AND EVANSTON ILLINOIS

LEUCOCYTOSIS following surgical operations, has been a subject of discussion by a number of men, namely Herbert King, 1899 White 1900 R. C. Cabot Blake, and Hubbard 1901 Frazer and Halloway 1901 Da Costa and Kalteyer and Charles Gibson, 1906. Cabot, Blake, Hubbard and Da Costa, laid special emphasis on the immediate and but temporary rise in the white blood cells after the administration of ether which I believe has no important bearing on the present series, for there were no counts made during the convalescence. White, in 1900 reported a series of 25 gynec-

of multiple fibroids or can we apply the same question following a perineorrhaphy?

These questions have come to my mind from time to time because of the discussions which have arisen when a certain surgical or gynecological case under post operative observation has developed a sudden rise in pulse and temperature together perhaps with some abdominal pain. In an effort to solve the problem and not primarily for diagnosis, a leucocyte count is made. For example on the third day the white count is 18,000. The surgeon asks what leucocytosis

granules, and the relative and absolute increase of the polymorphonuclear neutrophils, denotes either a normal reaction toward convalescence or a blood picture of the onset of a peritonitis. These observations are certainly very important and of great diagnostic and prognostic value.

The above papers dealt with the morphology of the white cells and the temporary leucocytosis following ether anesthesia. We shall in this paper endeavor to throw some light on the following questions:

1. Is it possible to say that on a certain day after a certain type of gynecological operation, in a previously non-infected case the leucocytosis should reach a certain average height?

2. And in another or same type of case that has had a previous focal infection in the pelvis with subsequent operation, can one rely on a certain average increase or decrease of the white cells?

3. Can we take for granted that there will be a certain rise of white cells and a certain decrease of them, after a number of days in a previously non-infected case, for example, following a hysterectomy for the removal

answer the question correctly.

In the cases herein observed we have endeavored to make the white blood cell counts at certain intervals during convalescence. As near as possible the counts were made at a certain time each day and by the same man.

The cases are divided as follows:

I. Thirty seven cases which, as far as we could ascertain, had no focal infection in or out of the pelvis.

| | Cases | Total |
|--|-------|-------|
| A. Ectopic Pregnancy | | 5 |
| a. Unruptured | | |
| b. Ruptured | 3 | |
| B. Hysterectomy | | 14 |
| a. Fibroid uterus | 7 | |
| b. Prolapsed | 4 | |
| c. Retroversion, with ovarian cysts in one case, and high cervical lacerations, in the other | 3 | |
| d. Uterine polyp | 1 | |
| C. Moderate procidentia, with related peritonitis and cystitis—retroversion in three cases | | 6 |
| D. Ovarian cysts | | 3 |
| E. Lacerated perineum with anal fistula | | |
| F. Colporrhaphy and perineorrhaphy | | |

II. Twenty three cases, with previous focal infection in the pelvis.

| | |
|---|----|
| A. Hysterectomy and salpingo-oophorectomy repair of cervix and rectovaginal | 10 |
| B. Vaginal hysterectomy and supravaginal hysterectomy | 1 |
| C. Hysterectomy fibroid uterus | 1 |

In 241 patients with carcinoma of the prostate who were examined at the Mayo Clinic and not treated I found the average duration of the disease to be thirty-two months from first symptoms to death they lived an average of ten months following examination. In the surgical group the duration of the disease averaged fifty-seven months, and the patients lived an average of twenty-seven months after operation. In the radium group because of recent treatments, such a comparison would obviously be misleading. However it is interesting to note that the twenty-nine living patients treated by radium prior to January 1921 average twenty-eight months of life after treatment and that the average duration of their disease has been prolonged to fifty

months. That 17 per cent of the patients treated with radium have lived more than two years after treatment, the period during which 93 per cent of untreated patients died. It is also interesting to note that while there are over twice as many patients, treated surgically, alive at the end of each year as there are of those treated by radium, still there are twice as many of the latter alive as there are untreated patients.

The efficiency of surgery is best portrayed by the fact that after six years all untreated patients are dead while 11 per cent of the patients treated surgically are living, and at the end of nine years 9 per cent are still alive. To conserve to a g

gery and in these will increase the duration of life. In a small percentage, results equal to those following surgery will be produced. A combination of the two methods would seem to be the procedure of choice.

In combining the two methods, radium should be used before surgery minimal doses being given from as many points of entry as possible in order to insure complete radiation of the gland and thus render the cancer cells incapable of reproduction. Even if the cells are forced beyond the prostatic area as

removal of the gland there is danger of producing a vesicorectal fistula.

CONCLUSIONS

1. The results obtained thus far by radium in the treatment of cancer of the prostate are inferior to those obtained by surgery.

2. The new methods of radium application indicate that in the future the results of the two methods will be the same.

3. Partial prostatectomy in cases of carcinoma occasionally proves to be a curative rather than a palliative procedure.

4. A combination of radium and surgery offers the best results.

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TABLE II—WHITE CELL COUNT IN CASES OPERATED ON WITH HISTORY OF PREVIOUS INFECTION IN PELVIS

| | | Pre-op. | P O | 2nd P O | 3rd P O | 4th P O | 5th P O |
|---|---|---------|--------|---------|---------|---------|---------|
| Unilateral salpingitis | Hysterectomy bilateral salpingo-oophorectomy | 11,500 | 26,300 | 15,600 | 1,300 | 10,400 | 14,000 |
| Bilateral salpingitis | Hysterectomy bilateral salpingo-oophorectomy | 9,300 | 2,700 | 600 | 9,300 | 1,300 | 6,800 |
| Bilateral pyosalpinx | Hysterectomy bilateral salpingo-oophorectomy | 11,000 | 10,800 | 1,500 | 1,300 | 1,300 | 1,300 |
| Chronic salpingitis, atrophic uterus | Hysterectomy left salpingo-oophorectomy | 10,000 | 10,000 | 0,500 | 8,800 | 8,500 | 8,000 |
| Bilateral pyosalpinx, atrophic uterus | Hysterectomy bilateral salpingo-oophorectomy | 5,900 | 6,700 | 8,900 | 7,800 | 8,000 | 7,800 |
| Bilateral pyosalpinx, dyspareunia | Hysterectomy bilateral salpingo-oophorectomy | 8,300 | 14,000 | 500 | 10,000 | 000 | 6,800 |
| Chronic salpingitis retro-cervix | Right salpingectomy & ovariectomy | 8,000 | 1,300 | 10,100 | 10,400 | 9,100 | 7,800 |
| Left salpingitis right tubo-ovarian abscess | Hysterectomy bilateral salpingo-oophorectomy | 1,300 | 7,300 | 16,100 | 800 | 10,700 | 8,700 |
| Left salpingitis, abscess salpinx | Hysterectomy bilateral salpingo-oophorectomy | 8,500 | 5,100 | 800 | 7,700 | 7,700 | 6,800 |
| Unilateral salpingitis, multiple abscesses | Hysterectomy | 9,400 | 10,800 | 1,800 | 12,800 | 1,800 | 14,000 |
| Unilateral salpingitis, loculated abscess and pyosalpinx | Tubal ligation and peritoneal therapy by hysterectomy right salpingo-oophorectomy | 8,800 | 10,000 | 18,200 | 800 | 10,000 | 7,000 |
| Pyosalpinx and infected peritonitis | Removal of Blom's Washer & Kelly apparatus, peritonitis in situ | 8,000 | 27,100 | 14,000 | 16,000 | 4,300 | 800 |
| Unilateral salpingitis right ovary excised | Hysterectomy right salpingo-oophorectomy | 000 | 18,000 | 10,000 | 0,000 | 9,000 | 9,000 |
| Acute pyosalpinx, loculated abscess, infected peritonitis | Removal of acute pyosalpingitis reaction of ovary Kelly's drainage | 10,000 | 1,500 | 10,000 | 14,000 | 10,000 | 7,000 |
| Pelvic peritonitis vaginal | Bilateral hysterectomy bilateral salpingo-oophorectomy | 000 | 4,800 | 10,000 | 9,100 | 6,000 | 1,500 |
| Endometritis vaginal discharge | Dilatation and curettage | 3,300 | 7,800 | 7,700 | 6,000 | 6,000 | 3,800 |
| Endometritis, infected peritonitis | Dilatation and curettage, left salpingectomy excision of uterus | 1,200 | 9,700 | 6,800 | 12,700 | 3,300 | 10,000 |
| Endometrial polypoid mass protruding from cervix | Vaginal hysterectomy and upper vaginal hysterectomy | 8,400 | 14,000 | 00 | 6,800 | Death | — |
| Unilateral salpingitis carcinoma of cervix | Pachymetastectomy | 800 | 28,800 | 1,500 | 000 | 10,000 | 14,000 |
| Carcinoma of right ovary and mass from cervix of left ovary | Exploratory operation, removal of small part of tumor for diagnosis | 8,600 | 9,100 | 6,700 | 6,100 | 7,700 | 7,400 |
| Unilateral salpingitis | Hysterectomy | 300 | 7,000 | 18,800 | 16,800 | 16,100 | 4,800 |
| Carcinoma of bladder | Dissection of tumor through cystotomy | 9,000 | 700 | 10,000 | 16,100 | 9,500 | 800 |

I will list the daily counts following the individual operations making a general division between cases operated upon with a history of no previous infection, and those with a history of previous infection which as far as could be ascertained at time of operation, had subsided (Tables I and II).

In Table III I have included the average temperature, simply to show that there is no constant comparison between the rise and

fall of the temperature and leucocyte count. In the average counts of the tubal pregnancies we have the usual rise in white blood cells due to pregnancy. In the ruptured tubal pregnancies, we have the usual rise plus the rise as a result of the absorption of free blood in the abdominal cavity.

There is in the series shown in Table IV also, the lack of constant ratio between the postoperative temperature and leucocytosis.

TABLE I—WHITE CELL COUNT IN CASES OPERATED ON WITH NO PREVIOUS GENERAL OR FOCAL INFECTION

| | | | | | | | |
|---|--|--------|--------|--------|--------|--------|--------|
| Multiple fibroids of uterus One tumor was dysplastic | Hysterectomy | 8,500 | 5,000 | 11,700 | 8,500 | 11,100 | 10,500 |
| Uterine fibroid | Hysterectomy | 6,000 | 6,000 | 7,000 | 7,000 | 7,000 | 7,000 |
| Uterine fibroid | Hysterectomy | 8,000 | 1,500 | 10,000 | 1,700 | 10,000 | 8,000 |
| Fibroid (subserosa) | Hysterectomy | 6,000 | 11,000 | 6,000 | 8,000 | 7,000 | 7,000 |
| Uterine fibroid | Hysterectomy | 1,000 | 10,000 | 6,000 | 1,000 | 7,000 | 8,000 |
| Fibroid of uterus subserosal peritonitis | Hysterectomy salpingo-oophorectomy | 1,000 | 10,000 | 1,000 | 1,000 | 10,000 | 10,000 |
| Leucorrhoea of cervix, and degree in carcinoma | Hysterectomy | 7,000 | 600 | 11,000 | 1,100 | 11,000 | 11,000 |
| Cervical polyp | Hysterectomy | 7,000 | 1,000 | 7,000 | 1,000 | 1,000 | 1,000 |
| High rectovaginal and uterine prolapse | Hysterectomy and repair of rectovaginal | 500 | 11,000 | 6,000 | 6,000 | 1,000 | 8,000 |
| Prolapse of uterus | Colpocatheteromy hysterectomy hysterectomy hysterectomy | 6,000 | 10,000 | 4,000 | 6,000 | 7,000 | 7,000 |
| Prolapsed uterus | Hysterectomy and perineal repair | 10,000 | 11,000 | 7,000 | 10,000 | 7,000 | 7,000 |
| Prolapsed, atrophic, hypertrophic of cervix | Hysterectomy repair of cervix and rectovaginal | 1,000 | 11,000 | 10,000 | 11,000 | 1,000 | 1,000 |
| Prolapse of uterus, cystitis, and related peritonitis | Anterior vaginal wall repair, excision of uterus | 1,100 | 10,000 | 6,700 | 6,000 | 100 | 1,000 |
| Leucorrhoea cervix, cervicitis, rectovaginal | Colpocatheteromy hysterectomy hysterectomy hysterectomy | 7,000 | 10,000 | 10,000 | 1,000 | 10,000 | 9,000 |
| Relaxed perineal sphincter | Vaginal reconstruction, hysterectomy hysterectomy hysterectomy | 6,000 | 10,000 | 11,000 | 1,000 | 1,000 | 100 |
| Relaxed vaginal outlet intraoperative | Hysterectomy hysterectomy hysterectomy hysterectomy | 100 | 11,000 | 1,000 | 10,000 | 1,000 | 6,000 |
| Relaxed perineal and related peritonitis | Hysterectomy hysterectomy hysterectomy hysterectomy | 8,000 | 11,000 | 100 | 9,000 | 1,000 | 1,000 |
| | | 8,000 | 1,000 | 11,000 | 100 | 11,000 | 1,000 |
| | | 7,000 | 11,000 | 100 | 6,000 | 6,000 | 7,000 |
| | | 100 | 100 | 10,000 | 9,000 | 9,000 | 6,000 |
| | | 1,000 | 100 | 9,000 | 1,000 | 1,000 | 1,000 |
| | | 6,000 | 10,000 | 10,000 | 1,000 | 100 | 1,000 |
| Cervicitis and rectovaginal | Colpocatheteromy and hysterectomy | 7,000 | 11,000 | 10,000 | 6,000 | 1,000 | 7,000 |
| Leucorrhoea peritonitis with anal fistula | Hysterectomy | 1,000 | 100 | 10,000 | 10,000 | 10,000 | 1,000 |

D. Uterus suspended, a Webster-Baldy-myomectomy in one, and right salpingectomy in the other one Colley plication, and repair of cervix and peritonitis

E. Debridement and curettage endometritis and peritonitis and excision of uterine cyst

F
G

H.
Gynecology* carcinoma of Uterus

1000

| Reduced anterior vaginal wall and elevated perineum | Temperature | White cell count |
|---|-------------|------------------|
| 1 day before operation | 98 | 7,430 |
| day after operation | 98.6 | 14,430 |
| 3 days after operation | 98 | 16,700 |
| 5 days after operation | 98.4 | 9,150 |
| 7 days after operation | 98.4 | 7,750 |
| 12 days after operation | 98.4 | 7,300 |

Although some rise of temperature would be expected in cases as shown in Table VII we find none on the other hand we do find a rather high leucocytosis higher than we get in some laparotomies. While the cases shown are not average cases they do show the resultant leucocytosis when operation is done in any infected area.

TABLE VIII—AVERAGE WHITE BLOOD CELL COUNT—HISTORY OF PREVIOUS INFECTION IN THE PELVIS

| A—Tubal hysterectomy and salpingo-oophorectomy | White cell count |
|---|------------------|
| Day before operation | 1,350 |
| Day after operation | 10,050 |
| 3 days after operation | 36 |
| 5 days after operation | 19,350 |
| 7 days after operation | 10,450 |
| 12 days after operation | 9,500 |
| B—Hysterectomy and salpingo-oophorectomy repair of cystitis and rectocele | White cell count |
| Day before operation | 18,650 |
| Day after operation | 10,000 |
| 3 days after operation | 8,000 |
| 5 days after operation | 11,600 |
| 7 days after operation | 6,000 |
| 12 days after operation | 7,400 |
| C—Vaginal hysterectomy and supravaginal hysterectomy | White cell count |
| Day before operation | 8,400 |
| Day after operation | 14,000 |
| 3 days after operation | 7,350 |
| 5 days after operation | 6,600 |
| D—Hysterectomy and bisection uterus Maximal infection complicating white blood cell count | White cell count |
| Day before operation | 17,500 |
| Day after operation | 7,000 |
| 3 days after operation | 6,800 |
| 5 days after operation | 6,800 |
| 7 days after operation | 6,300 |
| 12 days after operation | 14,300 |

There was such a variation of temperature in the cases shown in Table VIII that it was useless to record it. The leucocytosis shown in item A is an average from ten cases, but the counts in these cases on the respective days

subsided at time of operation. There is the same wide variation shown in items B and D. The lowered leucocytosis shown in item C is accounted for by the type of infection (hemolytic streptococcus) in which as one author reports we get a very small rise of white blood cells. The patient in this case died on the fourth day after operation.

TABLE IX—AVERAGE LEUCOCYTOSIS WITH PREVIOUS FOCAL INFECTION IN PELVIS

| Webster Baldy suspensions—2 cases, myomectomy, salpingectomy, Cooley placation—repair of cervix and perineum—1 case | White cell count |
|---|------------------|
| Day before operation | 17,033 |
| Day after operation | 1,077 |
| 3 days after operation | 5,007 |
| 5 days after operation | 4,400 |
| 7 days after operation | 11,733 |
| 12 days after operation | 8,650 |
| Dehiscence and curettage—1 case | White cell count |
| Endometritis | |
| Endometritis and peritonitis | |
| Day before operation | 9,100 |
| Day after operation | 17,750 |
| 3 days after operation | 1,075 |
| 5 days after operation | 2,150 |
| 7 days after operation | 2,575 |
| 12 days after operation | 7,950 |

The averages shown in Table IX illustrate the difference between vaginal operations and vaginal plus abdominal operations.

TABLE X—SINGLE WHITE BLOOD COUNTS ON TWO CASES OF CARCINOMA PANTH-YERECTOMY—CARCINOMA OF CERVIX

| | White cell count |
|---|------------------|
| Day before operation | 1,600 |
| Day after operation | 15,800 |
| 3 days after operation | 5,600 |
| 5 days after operation | 1,400 |
| 7 days after operation | 0,000 |
| 12 days after operation | 14,000 |
| Exploratory laparotomy—Removal of section for diagnosis (carcinoma of right ovary and ureterum) | White cell count |
| Day before operation | 6,600 |
| Day after operation | 9,100 |
| 3 days after operation | 6,750 |
| 5 days after operation | 6,450 |
| 7 days after operation | 7,700 |
| 12 days after operation | 7,400 |

The high leucocytosis in the first item in Table X I think, is due to the probable combined infection in the vaginal cavity. These counts again demonstrate the normal white blood cell counts following simple abdominal incision.

usually accounts for the varying counts, although as far as we know the infection had

TABLE III.—EXCISION OF TUBE AND OVARY—
FIVE CASES OF PICTONIC PREGNANCY WITH
NO PREVIOUS INFECTION

| | Tem- per- ature | White cell count |
|------------------------------------|-----------------------|------------------------|
| Unruptured tubal pregnancy—5 cases | | |
| 1 day before operation | 98.8 | 10,125 |
| day after operation | 99.4 | 10,500 |
| 3 days after operation | 100.4 | 9,075 |
| 5 days after operation | 99 | 8,400 |
| 7 days after operation | 98 | 900 |
| 13 days after operation | 98.6 | 10,175 |
| Ruptured ectopic pregnancy—5 cases | | |
| 1 day before operation | 99 | 17,587 |
| 1 day after operation | 99.8 | 15,150 |
| 3 days after operation | 100.2 | 11,813 |
| 5 days after operation | 99.6 | 11,053 |
| 7 days after operation | 98.6 | 9,500 |
| 13 days after operation | 98.6 | 8,650 |

ccc

days, although the uteri were removed be-
cause of 4 distinct varieties of causes

TABLE IV.—AVERAGE TEMPERATURE AND
WHITE BLOOD COUNT IN FOURTEEN IN-
TERECTOMIES WITH NO PREVIOUS INFEC-
TION

| | Tem- per- ature | White cell count |
|--|-----------------------|------------------------|
| Fibroid of uterus—7 cases | | |
| 1 day before operation | 98 | 6,307 |
| 1 day after operation | 98.4 | 14,479 |
| 3 days after operation | 100.4 | 10,007 |
| 5 days after operation | 99.8 | 8,604 |
| 7 days after operation | 99 | 8,007 |
| 13 days after operation | 98.4 | 8,714 |
| Precocious—4 cases | | |
| 1 day before operation | 98 | 7,800 |
| 1 day after operation | 99.4 | 14,300 |
| 3 days after operation | 99.8 | 9,450 |
| 5 days after operation | 100.4 | 9,473 |
| 7 days after operation | 99 | 7,873 |
| 13 days after operation | 98.8 | 7,050 |
| Retroversion—2 cases | | |
| Ovarian cyst, high cervical laceration | | |
| 1 day before operation | 98 | 8,400 |
| 1 day after operation | 99.4 | 8,075 |
| 3 days after operation | 99 | 900 |
| 5 days after operation | 100 | 9,075 |
| 7 days after operation | 99.8 | 8,800 |
| 9 days after operation | 99.6 | 9,775 |
| Ovarian polyp—1 case | | |
| 1 day before operation | 98 | 7,000 |
| 1 day after operation | 99 | 8,300 |
| 3 days after operation | 100.4 | 7,800 |
| 5 days after operation | 99 | 8,000 |
| 7 days after operation | 98 | 8,000 |
| 13 days after operation | 98 | 8,000 |

temperature and leucocytosis. In two of the
cases included in this table a hemorrhoid

about 2,000 from each day's average which
would show a more accurate result.

TABLE V.—AVERAGE TEMPERATURE AND
WHITE BLOOD CELL COUNT IN SIX CASES
OF MILD PRECIOUS WITH NO PREVIOUS
INFECTION

| Precocious with retained perimetrium and cystic — perimetrium as 1 case | Tem- per- ature | White cell count |
|---|-----------------------|------------------------|
| 1 day before operation | 98 | 7,800 |
| 1 day after operation | 98.4 | 14,775 |
| 3 days after operation | 100 | 12,305 |
| 5 days after operation | 100 | 10,115 |
| 7 days after operation | 99 | 9,007 |
| 13 days after operation | 98 | 8,013 |

TABLE VI.—AVERAGE TEMPERATURE AND
WHITE CELL COUNT ON EXCISION OF THREE
OVARIAN CYSTS—NO PREVIOUS INFECTION

| Removal of cysts as two cases had removal of cyst and right tube in third case | Tem- per- ature | White cell count |
|--|-----------------------|------------------------|
| day before operation | 98 | 8,800 |
| day after operation | 98 | 1,083 |
| 3 days after operation | 99.6 | 6,800 |
| 5 days after operation | 99 | 7,813 |
| 7 days after operation | 98 | 7,013 |
| 13 days after operation | 98 | 7,200 |

From Table VI it would seem that the less
that is done in the pelvis the nearer we come

leucocytosis may reach 10,000 is right in his
assertion

TABLE VII.—TEMPERATURE AND WHITE
BLOOD CELL COUNT IN TWO SINGLE CASES—
NO PREVIOUS INFECTION

| Lacerated perimetrium with anal fistula | Tem- per- ature | White cell count |
|---|-----------------------|------------------------|
| day before operation | 98 | 7,800 |
| day after operation | 98 | 900 |
| 3 days after operation | 98.4 | 20,670 |
| 5 days after operation | 98.4 | 20,000 |
| 7 days after operation | 98.8 | 10,000 |
| 13 days after operation | 98.8 | 8,000 |

In Table V there seems to be some ap-
proach to a constant proportion between

AN ENDEAVOR TO EVALUATE CHRONIC SEPSIS IN PREGNANCY

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PART II¹

In the first part of this paper I have submitted evidence that the placental infarct is due to infection of the maternal blood vessels of the placental site. This evidence demonstrates the presence of a clinical entity in pregnancy which has chronic sepsis as its continuous etiological factor. It

infarcts are the result of infection of a low grade virulence. When these bacteria lodge in the maternal vessels of the placental site a hemorrhagic lesion results, followed by thrombosis. A similar lesion results in the fetal placenta on the opposite side of the villous membrane which is secondary to the lesion in the maternal blood vessels. This thrombosis in the placenta results in a coagulation necrosis. Such a process is generally local similar to the hematogenous boil. At times it is multiple but more frequently it is a repeated localized process which can be demonstrated by finding infarcts in various stages of development in the same placenta. The acute infarct is a red inflammatory condition which can not always be identified by the naked eye. The white infarct is the end-result of the red infarct (1).

The results of infection of the placental site will be taken up under three main headings. Effects of infarcts (A) on the placenta, (B)

life of the fetus which in turn results later in miscarriage or the throwing off of the dead fetus. The greater incidence in miscarriage within the first three months is thus explained.

The infarcted area in the early months of pregnancy may occur in the middle of the placenta or on its edge. When it is on the edge of the placenta, the damage done prevents the further enlargement of the placenta at that point. As has been pointed out the distance from this point to the base of the cord gives an idea as to when the damage took place. When the placenta is at the base of the cord

to supply the needs of the growing fetus.

month of pregnancy to the type which is only slightly asymmetrical when the damage is done late in pregnancy.

PLACENTA PRÆVIA

It is well known that the point of attachment of the fetal end of the cord

etiological basis for placenta prævia and will explain many cases. The following case will demonstrate such an event.

CASE 6. A multipara in the fifth month of her pregnancy had a profuse hemorrhage. Labor followed immediately and within one half hour after arrival in the hospital she delivered herself of a small, well-formed fetus which made several at

thus a portion of the total area of feeding surface for the fetus is taken away. In the early months of pregnancy when the total

the placenta was therefore was a normal

TABLE XI—WHITE COUNT AFTER DIAETHERMY OF MALIGNANT TUMOR

| Carcinoma of bladder—diaethermy through cystotomy | White cell count |
|---|------------------|
| Day before operation | 9,450 |
| Day after operation | 17,000 |
| 3 days after operation | 18,900 |
| 5 days after operation | 16,800 |
| 7 days after operation | 18,250 |
| 9 days after operation | 14,650 |

In Table XI, the leucocytosis is due evidently to a continuous cystitis which is stimulated by diaethermy

TABLE XII—COMPARISON OF AVERAGE LEUCOCYTOSES IN VARIOUS TYPES OF CASES OPERATED UPON—WITH HISTORY OF NO PREVIOUS INFECTION

| | White cell count |
|--|------------------|
| Hysterectomy (Abdominal) | |
| Day before operation | 6,707 |
| Day after operation | 4,479 |
| 3 days after operation | 9,007 |
| 5 days after operation | 8,414 |
| 7 days after operation | 8,097 |
| 9 days after operation | 8,714 |
| Salpingectomy (Ligated ectopic) | |
| Day before operation | 10,153 |
| Day after operation | 6,600 |
| 3 days after operation | 6,075 |
| 5 days after operation | 8,400 |
| 7 days after operation | 9,300 |
| 9 days after operation | 9,175 |
| Sarcocystectomy of uterus | |
| Day before operation | 5,608 |
| Day after operation | 14,775 |
| 3 days after operation | 12,875 |
| 5 days after operation | 9,175 |
| 7 days after operation | 9,667 |
| 9 days after operation | 8,985 |
| Ovariectomy | |
| Day before operation | 8,600 |
| Day after operation | 5,663 |
| 3 days after operation | 9,000 |
| 5 days after operation | 7,833 |
| 7 days after operation | 7,433 |
| 9 days after operation | 7,300 |
| Pemphigectomy and oophorectomy | |
| Day before operation | 7,250 |
| Day after operation | 14,450 |
| 3 days after operation | 6,700 |
| 5 days after operation | 6,550 |
| 7 days after operation | 7,750 |
| 9 days after operation | 7,300 |

Table XII shows in the five common gynecological operations a decided difference in the postoperative leucocytosis. Each type of operation seems to have an average count peculiar to itself

CONCLUSIONS

1 In gynecological cases with a history of no previous infection, the postoperative leucocytosis during certain intervals of convalescence with a possibility of slight variation is constant

2 During the convalescence, following the five common types of gynecological operations above mentioned one can be sure in most cases with no gross complication of the leucocytosis at the stated intervals

3 In gynecological cases in which there has been previous infection the average leucocytosis cannot be depended upon, because of the wide variation of the count for each respective day. There is also uncertainty as to the type of previous infection and furthermore the cases are operated on at different intervals after previous infection

4 There is a very uncertain ratio between the temperature and the leucocytosis in all postoperative gynecological cases

5 There is little increase in the white blood cell following simple abdominal incision

Realizing the comparatively small number of cases observed in this series, there may be ample room for criticism, but with those averages derived from 3 to 14 cases of each type of operation especially those with the history of no previous infection, we are reasonably certain of the results

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Although no record was made in these cases of the condition of the placenta it is safe to assume that all of the toxic cases had infarcted placenta and many of the non-toxic would have also shown infarction. I do not believe my experience has been unique in finding that there are numerous cases which show a much infarcted placenta without much toxemia being present, and vice versa.

The placenta circumvallata and its modification represents nature's method for conquering the damage done by a ring of infarct formation along the circumference of the placenta. If this damage is not conquered it is plain that by the failure of the placenta to enlarge the fetus may be born prematurely alive or dead as the case may be. The relative maturity of the pregnancy at the time when the damage occurs has great influence on the results. The effects of placenta previa in its different types upon both mother and baby are too well understood to go into them in detail.

Although many of these features have been recognized for years they assume a new importance when it is recognized that the process by which they are brought about is frequently fundamentally due to a removable cause in the form of chronic sepsis.

a Direct infection of the fetus from the placental site.

b *Malformations* The potential power of the fertilized ovum for cell differentiation is

results. Certain variables, however enter this field which are known to us as hereditary characteristics or units. The question has always been a mooted one whether deformities are a hereditary characteristic. The association of many deformities with acquired syphilis tends to show not only that the deformity is an acquired attribute but also that the infection may be the primary damaging factor.

Much the largest percentage of all deformities occur in the region of the head. Hydrocephalus, anencephalia, harelip, absence of ears or some part of the head are the more common forms of deformity. This preponder-

ance of failure of development in the region of the head becomes significant when we consider it in relation to the fetal circulation.

The most direct route for the fetal blood as it comes from the placenta is through the liver and heart to the region of the head. It is a generally accepted theory that this fact explains why the baby's head is the largest and best developed portion of the body. The blood that reaches this portion of the body has the largest percentage of food products and oxygen for the development of the fetus. By this same token any damaging element in the blood coming from the placenta would result in a higher percentage of incidence of damage in this same region.

With the knowledge that we now have that the placental site becomes infected this preponderance of head deformities in association with the fetal circulation becomes of great significance.

That bacteria do pass the villous membrane is established in numerous ways. The work of DeLee (5) Curtis (6) and the disease of syphilis establishes this beyond a reasonable doubt. It is however to be borne in mind that the above examples quoted are cases of virulent infection. Infarct formation is more characteristically associated with sepsis of a low grade of virulence. The damage which results from the passage of bacteria through the villous membrane is, therefore dependent on two main factors, the virulence of the bacteria and the time in the pregnancy when such invasion of the fetus occurs.

During the first forty days of embryonic life the fetus may be described as a series of bundles of cells which have the potential power of differentiation into the different parts of the body. Injury to one of these bundles of cells is capable at such a time of destroying the whole or a part of a bundle with the result that a failure of development will follow according to the part destroyed. There is no power of compensation associated in the process of differentiation. The end result is an absolute lack of the part destroyed with an associated disturbance or distortion of contiguous parts. Most malformations such as anencephalia, harelip and the total absence of any part can be thus explained. In fact

In my paper entitled a "Clinical Study of the Placenta" (2) I reported a case to show that when the original attachment of the ovum is low enough in the uterus, an infarct in the early months of pregnancy may drive the compensating growth of the placenta downward with the result that low attached placenta marginal and complete placenta previa may result.

In such a case the placenta is generally of the battledore type with the cord attachment on or near the edge.

The following case reported by W. B. Thompson (3) with his accompanying illustration, is an example of this type. The illustration shows a complete placenta previa *in situ*. The cord is attached to the edge

In her history it is stated that she had had three spontaneous deliveries followed by a miscarriage. The patient had a temperature of 100.6° on admission. A macerated fetus was found. The microscopic examination of the specimen contains the following: "At its (the decidua) junction with the chorionic membrane there are numerous areas of

removed shortly after a bleeding spell or threatened miscarriage at the second month, likewise shows evidence of many minute necrotic areas of infectious origin.

Here, therefore, is another feature in the cause of placenta previa, and it should not be lost sight of that a certain proportion of this class are preventable by removing known foci of chronic sepsis before they do harm. What proportion of low attached placenta, marginal and complete placenta previas can be attributed to infarct formation in the early months of pregnancy can not be stated so soon, but from what experience I have already had with this point in view it will be a surprisingly large proportion.

PLACENTA CIRCUMVALLATA

Case 11 demonstrates that infection of the whole edge of the placental site may be the determining factor in the so-called placenta

FORMS BETWEEN IS MALLS

The position of the cord in this case shows that concentric enlargement was inhibited by very early damage to the placental site. A complete placenta previa is the result. The question of source of infection to cause this is clouded by the operative measures which

infection is very clear from the description in the macroscopic examination. This evidence

1. Fetus

2. The results of direct infection of the foetal tissues.

3. When a section of placenta has been destroyed by infarct formation, the rest of the placenta must enlarge to compensate for the needs of the growing fetus. Multiple infarcts therefore frequently result in the small or undernourished child so frequently seen in association with toxemia of pregnancy a disease which is almost consistently associated with infarct formation. The same process which reduces the nourishment of the fetus may result in complete inadequacy of the placenta, thus bringing about the death of the fetus *in utero*.

The association of macerated fetus with the much infarcted placenta has long been recognized. Note Dr. Thompson's case above described. In a study of 201 stillborn children at Memorial Hospital during the last ten years, 50 of them (25 per cent) were macerated fetuses. Thirty-three of these, or 66 per cent, of the total were from mothers who showed evidence of toxemia during their pregnancy.

"Yes, I remember that I was suffering from a chronic cold when I first discovered that I was pregnant. The cold lasted 3 or 4 weeks and that was in March." In this case the clinical sequence of events is therefore complete.

This case is important from another aspect because it shows that one twin can receive fatal damage while the other twin does not. In the first section of this paper I referred to Dr. Williams' case where one twin was syphilitic and the other not. Case 13 suggested a reasonable explanation of this phenomenon and I believe that this Case 18 is even more conclusive evidence of the real significance of Dr. Williams' case.

CASE 19. The following case not only demonstrates the above conception of the origin of deformed babies but also shows by the persistence of pathology in each successive pregnancy a picture of the clinical entity which has chronic sepsis as its etiological factor.

Patient had diphtheria and scarlet fever as a child. Scarlet fever was followed by right otitis media. Her teeth were in excellent condition. The tonsils were large. Muscular weakness was evident in all her pregnancies. Her first pregnancy was toxic and the baby had jaundice and inanition.

pregnancy she was in bed 53 days with inflammatory rheumatism.

July 1919

January 5, 1921 or at 7 months she started in labor and examination showed a uterus enlarged to full-term size. Patient stated that her abdomen had enlarged very rapidly. A diagnosis of hydramnios was made with probable deformed baby and probable *foetus at the base of the cord*.

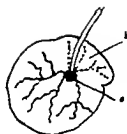
There was about two gallons of liquor. The baby was an anencephalic monster and the placenta

on low surface

This case shows an acute infection in the throat just previous to the first skipped menstrual period associated with an infarct at the base of the cord and a deformed baby.



Fig 1



Fig

Her previous history two toxic pregnancies a miscarriage inflammatory rheumatism, and a damaged heart demonstrates a persistence of pathology which can all be explained on the principle of hematogenous infection from a point of chronic sepsis in her tonsils.

Besides these three cases two babies showed unilateral valgus, one had a deformed esophagus and three others were anencephalics.

In connection with the etiology of deformities the work of Stockard of Cornell (8) is most illuminating. He has produced twins, double monsters and deformities in fish by limiting the available oxygen supply of the eggs at a crucial time in their development. This work tends to show that direct infection of the embryonic tissues is not a necessary feature. The observations above set forth, showing evidence of damage to the placental site in the early weeks of pregnancy are however consistent with Stockard's work. The damage to the placental site may reduce the available oxygen supply to the embryo coming from the maternal blood vessels. The damage to the foetus would in such a case depend entirely on the time in the development of the embryo when such a reduction in the oxygen supply took place. Case 17 with the absence of one ear the other being perfect would suggest however that damage to the embryonic tissues was extremely local. Such evidence is more consistent with the conception that the damage is brought about by direct infection of the embryo.

b Miscarriages. I have already endeavored to show the relation of infection of the placental site to miscarriage. It is common knowledge that many of the foetuses associated

If malformations are studied from this point they may be classified according to the time when the damage occurred. Thus a spina bifida of the lumbar region would have been a relatively late damage as compared to an anencephalic. The most of the cells of the spine had differentiated and only one group was damaged to form the low spina bifida. The absence of a hand would likewise be a relatively late damage.

The case of a spina bifida in a fetus having a menstrual age of 70 days, reported by S. T. W. Cull (?) shows that malformations arise at a very early age of the embryo.

After the fetus has become differentiated into its component parts damage to any region is compensated for by the germ cells of that part which have the duty of replacement of tissue in later life. Such damages do not appear as failures of development.

With this conception in mind I have made observations on the placentas of deformed babies to determine whether or not there was infarct formation or evidence of damage to the placenta at the base of the cord as evidence of early infection of the placental site. I have seen nine consecutive cases of deformed babies which have been associated with placentas which were consistent with this conception.

The three following cases are examples.

CASE 17. A primipara, age 35, with the history of frequent attacks of tonsillitis and a unilateral attack in 1918 also subject to neuralgia in the right shoulder.

place. (See previous papers.) The damage which resulted in the total absence of the right auricle must have happened within the first 40 days or thereabouts. The damage to the placenta and the damage to the embryo were therefore chronologically coincident, and we know that the damage to the placental site was infectious in origin. The patient had at the time of delivery no recollection of any acute infection associated with the early weeks of her pregnancy. Two large tonsils with a history of frequent tonsillitis show a possible source of chronic sepsis, as well as several carious teeth with pusy inflamed gums. This history of bleeding in April is further evidence that the placental site was damaged by infarct formation. There was no rise of blood pressure or urinary changes during her pregnancy.

Another case of this type is most illuminating.

CASE 18. A primipara, age 33, had her last period on February 4, 1921. Abortion was felt on July 1. She had very large tonsils. Four of her teeth were crowned, two molars were very carious, a retained root was visible in the gums all associated with pyorrhea. She had been subject to neuralgia of the face.

During her pregnancy she had been associated

typical battle-dore specimen with the cord attached to the edge. There was old infarct formation along this near edge.

The position of the base of the cord near the infarcted edge of the placenta records a very early damage and represents the time when the infection of the placental site took

white infarcted area in the opposite side of the placenta.

The findings in this case are similar to those in the other. The damage which caused the V-shaped indentation in the placenta must have occurred very early in the pregnancy. The anencephalic monster represents the damage done to the embryo at a corresponding period in the pregnancy.

The patient was asked if she had had any colds during her pregnancy. Her answer was,

had a pustular eruption as a sequel to the attack of bleeding one case in particular developing a very serious furunculosis of which it died later.

In all probability the cause of this disease lies in a specific bacterium. The two following cases are suggestive.

CASE 20. A primipara whose last period was

1920, the blood pressure had been subnormal, 90-60. On this date it rose to 130-100 and albumin

auricular process. These were removed on May 3 and following the removal of the gold crown tooth the wound oozed blood for nearly 24 hours. The day before extraction the blood pressure rose to 190-125. The extraction took place on May 4, and on the 6th the blood pressure was 50-90 rising to 140-110 on the 9th. From then until delivery it remained on a level around 145-90. She was delivered of a 4-pound baby on May 24. Labor began with ruptured membranes and was extremely slow. Mid-forceps terminated the labor. The baby developed hemorrhagic disease which was successfully treated by subcutaneous injections of whole blood. The baby showed a fever of 1 before the hemorrhage.

The following laboratory findings were recorded:
April 25 urine culture showed staphylococcus albus
eighth c
and sur
trace of
mother

crowned tooth the same tendency to bleed is found. The septic gold crowned tooth was directly under the antrum. This explains the relation of the tooth to the nasal mucous membranes. The signs in the lungs were associated with a crop of pimples on her face.

placenta was small, had velamentous attachment of the cord and was much infarcted. Note also the drop in blood pressure following the removal of the septic tooth.

Similar events occur in other cases.

CASE 21. A primipara developed toxemia in her eighth month, had premature labor and a 5-pound baby which died of hemorrhagic disease. Her blood pressure was 165-92 and she had albumin in her urine.

Her second pregnancy was under my care and except for mild toxic symptoms terminated normally with a 6-pound 5-ounce baby. The baby was jaundiced on the fourth day. No fever however. Patient's

nasal mucosa, and some anemia.

associated with fever, convulsions, nystagmus and other evidences of intracranial pressure.

Deep jaundice and hemorrhagic disease are believed to be akin. In this case there was no frank bleeding in the baby. Intracranial symptoms were apparent however. This history of hemorrhagic disease associated with toxemia in the first pregnancy, jaundice in the second baby and deep jaundice with fever and intracranial symptoms in the third pregnancy associated with bloody mucus from the nose in the mother within 10 days of delivery if regarded from the point of view of chronic sepsis presents a picture of a clinical entity.

It is not a common occurrence to find cases of hemorrhagic disease associated with such a set of symptoms as is above set forth. It is a very common occurrence to find hemorrhagic

Here is a case which shows evidence of a tendency to bleed in the nasal mucous membranes at first. On extraction of a septic gold

with miscarriage are deformed or imperfect. It has been the experience of some to find an intact sac with no foetus but with a cord. All these manifestations are explained by the above conception of the processes involved. It is substantiated by the work of Curtis (6) who inoculated rabbits with the streptococcus obtained from stillborn children. Not only miscarriage resulted but absorption of the embryos also occurred.

The association of repeated miscarriages with syphilis is well established. Syphilis is a disease of long standing chronic infection. The evidence herewith submitted points to chronic infection. The similarity of end results is to my mind most significant.

As I have pointed out the manifestations in the fetus of direct infection from the placental site varies according to the time of the pregnancy when the infection occurs. Case 15 in the first section of this paper represents an example of what may happen from an acute infarct at the time of labor with virulent

involved and their virulence. There is a great variety of theories as to the cause of the so-called "infantion fever." It is quite characteristic of this fever to drop as soon as the maternal supply of milk comes in. Feeding with cow's milk and forcing fluids has in my own experience had no definite influence

the newborn, it became apparent to me that babies which showed the infantion fever were very frequently associated with mothers who showed evidence of other pathology of an infectious nature. I can not give figures for this assertion but I am sure of the existence of this association. These observations are also supported by the work of Gruler and

combined either with the nature of the burn or with fever in the mother. Abnormal labors

are noted in fifteen of seventy four cases and in thirteen instances the mother had fever.

In connection with the fall of the temperature which so characteristically takes place at the time or soon after the mother's milk is available for food it should be remembered that Ehrlich long ago showed that antitoxins in the blood of the mother pass over into the milk

which probably add much to its capacity to resist infection in early life." Also that "it is definitely established that such passive immunity as very young animals exhibit does not come ordinarily if at all by transfer through the placentas, but by alimentary absorption from the colostrum." If we regard this infantion fever as of infectious origin, that infection having been obtained during labor or the last few days of intra-uterine life from the placental site and that it is the antitoxins developed by the mother and passed on to the baby by her colostrum that brings about the drop in temperature as soon as the milk comes in, we then have a reasonable explanation of the phenomena observed.

evidence of toxemia of pregnancy and associated chronic sepsis. I wish to repeat this statement. The frequency of infarction of the placenta in association with toxemia of pregnancy explains this relationship when it is recognized that infarction represents infection of the placental site.

With knowledge that we have that infarction can go on without the association of toxemia, it is also plain that hemorrhagic disease may occur without the association of toxemia.

The nature of the disease itself with the malaise, limpness, lack of interest in nursing, and most important of all the accompanying fever speaks loudly in favor of an infectious origin. Numerous cases in my experience have

coagulation necrosis. It is suggested that this placental lesion is secondary to a hemorrhagic lesion of infectious origin in the maternal blood vessels of the placental site. It is further suggested that there is a strong analogy between these multiple hemorrhagic and necrotic areas in the decidua basalis and the lesions of similar nature which are found in the liver, the kidneys and the brain of the dead eclamptic. Placental infarcts are not the cause of toxemia of pregnancy except that they may form a new focus of infection. They stand however as recorded evidence of blood-borne infection past and present.

LaVake was the first to insist that eclampsia was associated with and dependent upon chronic sepsis (20).

My own article called attention to the constant association of chronic sepsis with toxemia of pregnancy and eclampsia (12). Mosher (21) called attention to the frequent association of chronic sepsis and toxemia of pregnancy.

The infarcted placenta is in itself evidence of the presence of chronic sepsis.

The infarcted placenta is especially associated with three disease entities: syphilis, chronic nephritis and toxemia of pregnancy and eclampsia. The first disease, syphilis, is a well recognized chronic infectious disease entity. The second, chronic nephritis, is today recognized as due principally to chronic sepsis. The observations of LaVake, Mosher and myself above referred to have shown that toxemia of pregnancy and eclampsia are associated with the presence of chronic sepsis. The infectious origin of the infarct has been shown by the sequence of clinical events set forth in the first section of this paper and borne out by the microscopical examinations of an infarcted placenta *in situ*. The associated phenomena with toxemia of pregnancy such as, antepartum hemorrhage, stillborn babies, macerated or deformed fetus, ill nourished babies, and premature labors are all explained by the infectious origin of infarcts in the placenta. These are consequences dependent upon the single principle of septic emboli in the blood stream of the pregnant woman which arise from areas of chronic or acute sepsis.

There is still further evidence that the activity of chronic sepsis plays a part in toxemia of pregnancy.

MacKenzie (22) has pointed out that the future advancement of medicine lies in a closer study of the early symptoms of disease and the processes involved in the production of those symptoms. As an example he takes up the disease of appendicitis. He points out that the inflammation of the tissues of the appendix causes localized pain in the region of McBurney's point in the abdominal wall and a spasm or increased tone in the right rectus muscle. He suggests in explanation of these phenomena that the nerves of the sympathetic system around the appendix become stimulated by the inflammatory process and that this stimulus is transmitted to the cord and is there transferred to the sensory and motor neurons associated, with the result that the sensory nerve records pain and the motor neuron increases the tone of the muscle in its control. This explanation of the cause and effect he supports by other examples in the region of the abdomen.

1. spasm in the muscles generally spoken of as stiff neck, stiff shoulders or drawing sensation in the back of the neck. It is my contention that these symptoms, particularly if they are recurrent over a period of time, are generally indicative of infection somewhere in the nose, throat or teeth and are just as significant of the infection, either of an acute or chronic nature in this region as they are in the region of the appendix.

There is a mass of clinical evidence to support the truth of this view just as there is in appendicitis.

Acute infection of the nasopharyngeal tract gives generalized or frontal headache. Local sinus infection gives one-sided headaches. Localized neuralgias are often cured by the removal of septic teeth or tonsils. Occipital headaches with the associated stiffness of the muscles of the neck are frequently cured by removing septic teeth or tonsils.

disease in association with toxemia of pregnancy miscarriage and other evidence of the activity of chronic sepsis in the previous history.

Intracranial hemorrhage. It has been stated by Hedren (13) that 9.25 per cent of 700 infant cadavers showed intracranial hemorrhage. Delivery was normal in 50 of the 68 cases reported. It is recognized today that intracranial hemorrhage is often a manifestation of hemorrhagic disease. In view of my assertion that hemorrhagic disease is probably due to infection of the fetus from the placental site I wish to emphasize that the arrangement of the fetal circulation previously described may be the determining factor in this high percentage of intracranial

hemorrhage is not so dependent upon birth trauma as it was formerly believed to be.

It has been advanced that hemorrhagic disease is in some way associated with asphyxia and that operative deliveries and breech deliveries predispose to hemorrhagic disease. If we regard the baby as already suffering from infection and in a weakened condition, the operative or breech delivery may be the aggravating cause of the asphyxia.

Jaundice of the newborn. Jaundice of the newborn is probably the most common pathological manifestation in the newborn baby. It is frequently associated with fever

The to icul stump. Deluca (14) has recently emphasized the frequent association between jaundice and intracranial hemorrhage and even goes so far as to say that jaundice is a symptom of intracranial hemorrhage.

If jaundice of the newborn is regarded as a manifestation of infection of the liver of the fetus resulting from infection of the placental site, these observations may be correlated and explained. The peculiarities of the fetal circulation offer a reasonable explanation. The liver of the fetus is the first organ in the course of the blood coming

from the placenta. It is in the liver that the spirochete are most commonly and abundantly found in the syphilitic child. The association of jaundice and intracranial hemorrhage is made apparent if they are both regarded as lesions of a hemorrhagic type resulting from infection borne by the blood stream of the fetus, said infection coming from the placental site where similar hemorrhagic lesions of infectious origin are found. Loska (15) in a study of 102 cases has found that jaundice of the newborn begins with a hemoglobinemia and in a number of cases he found hemolytic staphylococci in the blood in the granuloma of the navel and in the feces. In 11 cases a hemolytic agent closely resembling staphylococci were present in the serum, and the author concludes that icterus of the newborn is due to a bacterotoxic hemolysis which was in his cases caused by hemolytic staphylococci.

C The constant association of placental infarcts with toxemia of pregnancy and eclampsia

thrombotic process (16) in maternal vessels of the placental site has recently published an article (17) tending to show that toxemia is due to the toxins of autolysis resulting from infarct formation.

There are four principal objections to such a theory. First, the degree of toxemia has no relation to the total amount of infarction in the placenta. This reason, although not conclusive is indicative. Second, the symptoms of toxemia often persist after complete involution of the uterus (18). Third post partum eclampsia may occur as late as the eighth day post-partum (18). Fourth toxemia of pregnancy tends to recur in subsequent pregnancies (19).

The last three reasons point to a primary cause outside the individual pregnancy and persistent throughout the subsequent obstetrical history of the patient.

It has been shown that the placental infarct is primarily a hemorrhagic lesion the evolution of which is characterized by a

following an acute throat infection may represent a complete entity but where such a patient shows other manifestations of septic emboli in the blood stream, the etiological factor must be continuous, and thereby demonstrates that chronic infection acts the same as the single acute infection. The potential danger of areas of chronic sepsis is thereby demonstrated. It is, therefore, plain that too much emphasis can not be laid on the importance of the removal of areas of chronic sepsis in the pregnant woman or the woman who expects to become pregnant. What is or is not chronic sepsis is often difficult to determine from the local signs. Systemic symptoms are of the greatest importance in determining the presence of a focus. The teeth and the tonsils, in my experience, share the responsibility about equally and very often together.

Some hints as to the results of treatment along these lines have been given in this paper. The subject of treatment and results will be dealt with in another paper. It is sufficient to state here that my results have been sufficiently satisfactory to warrant the statement that the clinical relationship is again apparent in the results of treatment on the basis of chronic sepsis as the primary etiological factor in the types of obstetrical pathology above set forth.

Removal of chronic sepsis in the presence of a pregnancy has very definite limitations however. There is a very common saying prevalent among the medical and dental professions and among the laity that dentistry should not be done during pregnancy. I believe this saying is well founded when it is limited to septic conditions in the teeth. Disturbance of chronic sepsis often results in active sepsis. Injury to the placental site in the early months of pregnancy is more likely to result in miscarriage than later. Likewise it is recognized that many cases of toxæmia are precipitated by acute infection. It is, therefore, not advisable to disturb chronic sepsis in the presence of toxæmia of pregnancy.

The best time for the removal of chronic sepsis is either before or between pregnancies.

If however chronic sepsis is found in the pregnant woman the safest time for its removal is between the fourth and the seventh month.

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Experience has shown that when there is localized pain over the appendix and muscular spasm, that the proper method of treatment is to remove the inflamed appendix. Why? Inflammation of the appendix *per se* never injured anyone but the appendicitis kills by the spreading of the infection to the peritoneum with resulting overwhelming infection. Thus the operation of appendectomy is in essence a preventive measure.

One of the reasons that appendicitis untreated is so deadly is the spread of infection to regions where the resistance is relatively low. The inflamed appendix is, therefore, nothing more than a focus of infection in the region where the resistance to bacterial invasion is low.

A certain amount of immunity has probably been established in the nose and throat

always enumerated as such in the textbooks on obstetrics.

Here, therefore, is further clinical evidence of the association of active chronic sepsis, if we regard these symptoms as evidence of the presence of chronic sepsis.

In view of the evidence submitted, it seems justified to advance the suggestion that these localized symptoms in the region of the head may be those symptoms which lead us to the point of entrance of the bacteria into the system which are causing the disease of toxemia of pregnancy. It is no more possible to say that

however

It is the object of this paper to show that just as the sore throat, the skin lesions, the

certain circumstances

It is well established that these foci of chronic sepsis may be the original point of entrance of the bacteria which are found causing trouble in remote parts of the body. Here again the likeness to the sequence of events in appendicitis is apparent. The infection on the tooth root or the tonsil does not kill until it is transferred to some portion of the body where the resistance is relatively low. The seriousness of the situation is therefore dependent on the matter of chance as to where the migrating bacteria may locate to form a new point of infection.

MacKenzie has also pointed out that it is necessary to evaluate the early symptoms of disease in order to institute treatment before the disease has caused irreparable damage. It is apparent, therefore, that if a neuralgia

pregnancy the toxic mother with the associated breast abscess, the miscarriage, the antepartum hemorrhage, the deformed baby and the hemorrhagic baby are parts of a large clinical entity with acute and chronic sepsis as the initial lesion. Everything that

origin of infarcts binds all these lesions together and thereby shows why the miscarried foetus, the miscarriage or the hemorrhagic baby is so frequently associated with toxemia of pregnancy and yet may occur

borne diseases as circumstances, among

miscarriage and usually a miscarriage is carried to term but associated with marked toxemia, is not to be considered as several

History A case showing uterine neurosis

division, is a prominent rounded ridge of more or less firmly contracted muscle completely encircling the uterine cavity.

The structure is the ring in physiological action and its important clinical characteristics are as follows: it is located approximately one-fourth of the distance from external os to fundus at the level of reflection of the anterior uterine peritoneum over the bladder. In terms of the pelvis it is on a level with or just below the pelvic inlet and its firmness and *inside* diameter are such that passage of the separated placenta through it commonly is retarded and not infrequently delayed indefinitely unless the Credé maneuver is carried out. With the foregoing characteristics of the postpartum ring in mind, various manifestations of its abnormal activity during labor will be more readily understood.

Though best known as Bandl's ring, there are two other terms applied to the structure. Because it is conspicuous as the uterus contracts down upon the irregularities of the fetal ovoid during labor and upon itself postpartum, it is known as the retraction ring. Again, it is called the contraction ring and the term is applicable if for no other reason than because it is descriptive.

Disregarding adjectives, rings are of two kinds: they are the physiological and the pathological. The former are part of the phenomena of parturition. They are physiological in that they facilitate or at least do not retard the process of labor and they are manifestation of activity that make the early puerperium safe. The latter are abnormalities of the physiological. They are pathological in that they interfere with or obstruct labor and therefore make its conduct difficult.

Physiological rings can be felt at the height of contractions and even though membranes have ruptured and the uterus is in contact with the irregularities of the fetal outline, they are never so prominent as to interfere with upward advance of the lower segment nor with downward progress of the child and they disappear between contractions. During the briefest of these intervals —

it over upon itself like a cylinder as center or edge of the placenta meets the ring's resistance.

Pathological rings are of two kinds. First is a ring presenting persistent tone in the presence of general retraction and in cases of dystocia with which such a ring is associated it shares with the general condition responsibility for lack of advance. It is a true retraction ring because it is met only in cases of retraction and because it yields to treatment appropriate to the latter condition.

Second is a ring in tonic contraction in the absence of retraction of the rest of the uterus. Here the ring is a primary cause of obstruction in that advance is impossible as long as it persists and whether it is designated Bandl's ring in tonic contraction or persistent retraction ring or tonic contraction ring makes little difference as long as its clinical significance is grasped. However the term con-

traction ring dystocia

The three conditions in which the ring is found in persistent contraction are first: tonic (or capped) uterus; second: labor obstructed by general uterine retraction; and third: tonic, isolated contraction of the ring or contraction ring dystocia.

Tonic uterus is so familiar a complication of parturition that its etiology or symptomatology or even its dangers need not be enumerated. Present discussion is concerned with reason for the ring's appearance and with significance to be attached to the well-known fact that, as the condition persists the ring assumes progressively higher levels until maximum thickness of the upper segment is attained when the attenuated lower segment not uncommonly ruptures.

In the condition described appearance of the ring is the inevitable result of progressively intensified and eventually tetanic effort of the upper segment and its location marks the abrupt change from the thickening and globular upper segment to the progressively thinning lower segment that is inactive and that corresponds in its shape to portions of

BANDL'S RING AND DIFFICULT LABOR¹

BY PAUL T. HARPER, M.D. ALBANY NEW YORK

CHOICE of the above subject for presentation before your society is prompted by a desire to direct attention to the rôle of the ring in pathological labor. Since the days when Bandl described the structure, considered it a physiological accompaniment of labor and gave it a name the ring has occasioned no little discussion and some debate particularly as to its relation to abnormal labor.

All textbooks discuss its physiology mention its presence and tendency to rise as indicating threatened rupture of the uterus in obstructed labor and describe the post partum hour glass uterus, for the particular shape of which the ring in tonic contraction is responsible. The author of one of the standard works of reference goes farther and considers totality of the ring as a complication of the first and of the second stages of

What follows is offered as a contribution toward establishing what may be termed the pathology of Bandl's ring and is written with the firm conviction that persistence of the ring is a striking feature of three varieties of dystocia and further that each is a distinct clinical entity because in no two of them are clinical significance and syndrome the same.

Division of the parturient uterus into upper and lower segments offers striking illustration of adaptation of an organ to the work it is to do. The task is expulsion of the ovum and the force making it possible is supplied almost entirely by the contracting muscle.

Though the entire structure of the uterus is muscular it is apparent that all of it is not given over to contraction. If it were, child and placenta would be held within the uterus rather than expelled from it as labor advanced. Again, as the lower segment expands sufficiently to allow its contents to escape with relative ease, while the upper segment contracts with force enough to produce subsequent advance, it is just as evident that upper and lower portions behave differently in labor.

Passive character of the lower segment is evident in its progressive thinning out and upward advance over the presenting part as the cervix dilates. The active upper segment cannot be examined directly during labor for reasons that are apparent. However such an opportunity is offered at a time when its activity may be expected to be at its height, namely right after placental expulsion, and when its sustained activity controls post partum bleeding. At this time, bimanual examination reveals the presence of a widely dilated and more or less atonic cervix and lower segment and a thickened and globular upper segment, the firmness of which varies with incidence and disappearance of more or less regular contractions. Between the two segments, and marking their physiological

guished authority maintains that isolated contraction does not occur a contention that may be correct but that is far from convincing, since it is supplemented by no

ring and difficult labor that can be shown upon in time to establish the actual relationship between them, has yet to be inspired.

Unquestionably a firmly contracted ring does complicate labor as a reasonably extensive literature and the experience of competent observers bear witness to and so often is spontaneous advance completely blocked either because of it or because of other elements of dystocia with which the

ring and difficult labor that can be shown upon in time to establish the actual relationship between them, has yet to be inspired.

¹Read before the Albany Obstetrical Society, December 19, 1904.

— and *firmness* that

because it disappears quickly under appropriate treatment

Signs referable to the ring itself are elicited only on lower segment exploration when the structure can be palpated internally and its size and firmness determined. External signs of the presence of the ring are negative. No furrow on the anterior surface of the uterus can be seen or felt, because primary location of the structure is on a level with or just below the pelvic inlet, *and it does not rise*. The ring can rise only as the lower segment is drawn upward such motion is possible only as resistance it offers is overcome and when overcome, it obviously disappears as a cause of dystocia. A rising ring is proof that obstruction to advance that may obtain is *not* primarily uterine in origin.

Clinical course in labor complicated by retraction ring dystocia varies with time of its occurrence, with presentation, with degree of associated general retraction, and with methods employed to meet the lack of advance occasioned.

When occurring in the mid-first stage, labor is obstructed and there arise the dangers of intra uterine asphyxia from interference with circulation at the retracted placental site and of cervical and lower segment laceration if attempts at overcoming apparent rigidity of the cervix by vigorous manual dilatation are made

It is when general retraction sets itself up after the cervix is well dilated that the course is most affected. When the presentation is breech, the soft, compressible buttocks are readily directed into and often through a cervix not yet fully dilated. If at this time membranes rupture and retraction appears the breech descends into the elastic funnel represented by the retracted lower segment and the legs, meeting resistance of the fixed retraction ring, become extended. Just how much extended and how firmly grasped will depend upon prominence of the ring and strength of contractions driving the breech onward. This is believed to be the *usual* way in which a breech becomes impacted. Certainly extended legs is never a primary attitude. It is the result of *resistance and advance*. In a frank breech, otherwise uncom-

of the ring along the uterine wall fixed it is apparent that its position in relation to the child will depend upon the pelvic level assumed by the presenting part at the time of the appearance of the ring. With the former at the inlet, position of the latter is in advance of the presenting part. The ring is located behind the presenting part when the latter has reached the pelvic outlet before general retraction appears. In either case its position is maintained and complete dilatation of the cervix is impossible as long as retraction persists. Tonic retraction ring almost invariably is a complication of the first stage of labor.

The characteristic symptom of retraction ring dystocia is more or less continuous pain low down in front. When occurring during the first stage of labor pain of this type is suggestive of failure in progressive dilatation because the pain of satisfactory dilatation is felt not in front but low down in the back *toward the end of the sacrum*. When progressive dilatation ceases in the presence of pain of the kind described the diagnosis of ring obstruction is highly probable.

Physical signs are even more striking. Irregularities of the fetal outline can be seen and palpated and the uterus is felt to maintain a varying amount of tone between contractions. The lower uterus, particularly is tender. Usually the cervix is incompletely dilated and seems rigid. Its peculiar feel is due to a combination of oedema caused by passive congestion that results from tight grasp of the lower segment and muscular tone that the cervix shares with the rest of the uterus.

Doubtless many cervices the failures in dilatation of which are ascribed to rigidity are of this type. Practically every cervix dilates when physiological forces are permitted to work upon it. In retraction ring dystocia such forces are nullified and dilatation ceases. Here rigidity is apparent rather than real,

the child's body contained within it. Tonic uterus occurs in grave malpresentation and malposition and in the rare instances of marked disproportion where the obstacle to advance is pelvic. Here the ring forms as a result of maximum effort of the uterus at

therefore is a primary cause of obstruction and to fit under these conditions, the term retraction ring is applied.

I

The ring forms as the result of tonicity of the upper uterus and therefore it is not primarily obstructive. For the latter reason it can be and is drawn upward as obstruction persists and uterine overaction continues and the heights to which it rises are determined only by the thickness the upper segment attains and by the resistance to its progress upward that the prominences of the fetal outline offer.

That even in tonic uterus there are factors that limit the extent to which the ring can rise may well be emphasized at this point and appreciation of this fact will make it easier to understand why in cases where the ring is a primary cause of obstruction the structure cannot and does not rise.

Junction of the thickened upper and thinned-out lower segments is indicated by the presence of a furrow across the anterior surface of the uterus that marks the location of the ring. It can be seen and felt to rise as the ring assumes progressively higher levels.

The ring in tonic uterus is pathological in that it is occasioned by retraction during labor. However the resistance it occasions may not improperly be considered prophylactic, in that it postpones rupture that is inevitable if tonicity goes far enough without being relieved. For the latter reason, it might be contended that the tonic ring in capped uterus is more physiological than pathological. However the latter significance is attached to it because it is met in association with an abnormality of labor that is decidedly pathological and because the rising ring of tonic uterus is generally considered a pathological entity.

lower segment and, therefore, to progressive dilatation of the cervix and to subsequent passage of the child through it.

The fundamental cause of retraction is abnormality of uterine action as a result of which contractile efforts are sustained and intermittency (or complete relaxation between contractions) disappears. Although most marked after escape of the liquor amnii decreases the size of the uterine cavity retraction does occur while membranes are intact. Although retraction is invited as attempts at manual or hydrostatic dilatation of the cervix are made, and may actually be produced if cervix and lower segment present tone when persisting in them, pronounced retraction not infrequently is met where manipulations of no kind have been practiced and where its presence is discovered only after routine lower segment exploration in attempt to explain failure in progressive dilatation of the cervix.

In practically all cases where there is history neither of dry labor nor of attempts at dilatation and where retraction obtains, the uterus is irritable, in that subjective pain is marked and contractions in one or more respects are atypical.

The commonest cause of retraction is premature rupture of membranes plus heightened contractile efforts that follow escape of the fluid and that are designed to overcome abnormality of presentation and position, or moderate disproportion, with which the accident is so commonly associated.

In general retraction the ring stands out as a prominent ridge encircling the interior of the uterus. It is a complete ring because retraction is general although, as might be expected it is more conspicuous as deeper furrows and depressions of the child's body are in relation with it. A striking clinical

dangerous. As satisfactory results attend deep anesthesia secured by the continuous administration of surgical ether. When complete muscular relaxation is secured the ring disappears and untoward effects are absent.

Whether or not progressive advance is to follow return of contractile efforts as effect of the anæsthetic is recovered from is soon apparent. If physiological labor is resumed the uterus is felt to relax completely between contractions, at which time foetal movements can be felt and often seen. If in the first

tractions become actually propulsive and extragenital palpation (elicited by upward digital pressure at one side of the vulva and beneath a pubic ramus) detects progressive advance of the presenting part.

If advance does not occur within an hour it is probable that general retraction has again set itself up (since its causes may persist) and interference is indicated. The advantages of delay up to this point are twofold: the child is a better operative risk because the uteroplacental circulation has been given ample opportunity to re-establish itself and because the foetal heart has been stimulated by the ether administered while the mother has been given every chance to terminate labor spontaneously.

Active treatment of labor obstructed by tonic retraction ring must be undertaken with an appreciation first that the actual causes of retraction commonly persist and second that return of uterine activity too frequently re-establishes retraction. With the foregoing principles in mind one secures *complete* uterine muscle relaxation that is possible with no less than 20 minutes of deep anesthesia and proceeds with treatment appropriate to the stage of labor in which the complication has arisen.

In ring dystocia the writer has had experience with the use of but one anæsthetic—ether. Its results are so satisfactory in every way that he has hesitated to assume

the responsibilities of the deep and prolonged *chloroform* anesthesia that it is believed cases of the type would demand.

If the internal os is unobliterated careful manual dilatation is done and the largest hydrostatic dilator that can reasonably be used is inserted. Instances of the kind are rare and treatment of them is not wholly satisfactory. Further they require symptomatic treatment of all manifestations of returning retraction. With the internal os wholly obliterated manual dilatation of cervix and lower segment, so complete that the closed fist can be drawn through without resistance being met, is done. Except that all contractile efforts have ceased the patient now is in the second stage of labor and immediate delivery is desirable. Here, the theoretical objection to delivery in the absence of contractions is more than counterbalanced by quite complete immunity from *returning retraction* that a wholly inert uterus gives promise of.

From this point procedure varies with presentation and particularly in vertex presentations, with position of the presenting part in the pelvic cavity.

In breech presentation where varying degrees of impaction and extended legs accompany retraction the buttocks are pushed upward. This simplifies the bringing down of one and then the other leg. When any appreciable force is required to accomplish either of the foregoing, the ring and general retraction have not yet been eliminated and deeper ether anesthesia is indicated. With the feet through the vulva, extraction is begun. It is accomplished with little difficulty if the uterus is kept relaxed and the loss of propulsive efforts compensated for by continuous firm fundal pressure exerted by the palms of an assistant's hands. When the breech is made to advance by *push* from above rather than by pull from below the head is kept flexed and the arms remain folded across the chest. It is traction from below plus resistance of an incompletely relaxed lower segment that commonly extends the arms and that is responsible for much of the foetal mortality in extraction by the breech.

plicated the bony pelvis offers resistance, while engagement and descent represent advance in retraction ring dystocia, resistance is greatly increased with the inevitable result that the movable feet and legs are retarded and then extended upon the buttocks as the latter descend.

Again, in presentation by the breech general retraction may not appear until late in the second stage, when the larger shoulder diameters enter the lower segment and stimulate it to increased activity. Here it is the retraction ring that not uncommonly causes arms to extend and adds to the difficulties of delivery.

In well-engaged vertex presentations, the ring is found encircling the child's neck, as might be expected since the structure has its origin along the uterine wall at a corresponding level. When once set up further dilata-

present. An ever present danger is prolapse of cord as membranes rupture and fluid

It is firmly enough contracted to obstruct labor transition from general retraction to tonic uterus is impossible.

The obstruction occasioned by tonic retraction ring could be prevented were *beginning* general retraction recognized, as corded curative treatment, and its causes eliminated. Therefore if retraction has followed introduction of a hydrostatic dilator or bougies their immediate removal is indicated while if it is occasioned by attempts at manual dilatation of the cervix, such efforts must be discontinued. When malpresentation is a factor in the causation of retraction

intra-uterine asphyxia because of general retraction but risks are greatly increased if the condition is mistaken for inertia and treatment by stimulation with pituitary extract carried out. Greater danger to the child is that of injury to its head from pressure and traction by forceps when the obstruction is undiscovered and when attempt is made to produce advance by sheer tractive force from below. The ring can be dilated by such a force but only with markedly increased risk of maternal and foetal injury. It is in unrecognized cases of this type where no actual disproportion obtains, that the most difficult manual dilatations and forceps operations are done.

With the vertex high, position of the retraction ring is in advance of the presenting part and here it remains, interfering with dilatation and descent. If membranes have ruptured the ring is readily felt on routine vaginal examination but when still intact

that cannot be removed. Here retraction should be anticipated and increased subjective pain and maintenance of a varying degree of tone between contractions treated by conventional doses of hypnotics or narcotics, or if necessary by discontinuous administration of ether. Such precautions are especially indicated if the patient is neurotic or the uterus irritable because the condition not infrequently is encountered where none other than the two etiological factors mentioned obtain.

There is no more direct way to invite or actually to occasion pronounced retraction than to persist in attempts at manual dilatation of a rigid cervix. If the internal os is unobliterated rigidity is physiological, and varying degrees of retraction almost invariably follow such relatively rapid attempts at dilatation while, if entirely obliterated rigidity is evidence of already-present retraction that can be counted upon to be markedly increased. With the internal os obliterated the external os well dilated and with the ring in advance of the presenting part, artificial rupture of membranes almost invariably intensifies retraction already present.

Retraction well set up though as yet not absolutely obstructive doubtless could be relieved by deep narcosis. However the de-

of membranes, that in such cases as and lack of advance invite, can be counted upon to add to the difficulties of labor already

In the individual case suggests either faulty innervation or irregular stimulation of an orderly nerve supply. Since the condition did not recur in a second pregnancy in one case and was met for the first time in a second pregnancy in another it is reasonable to conclude that, in the cases cited at least quite normally innervated muscle behaved abnormally. Though excitation to abnormal muscular activity could arise from irregularities of presentation and position from disproportion, from premature rupture of membranes, and from the irritating effects of oxytocics, hydrostatic dilators, bougies and the like, the fact that the condition has been met where none of the factors mentioned has obtained where labor was both premature and spontaneous and where membranes were intact, makes reasonable the assumption that the conditions mentioned are predisposing rather than actual or exciting causes. As might be expected the condition is far more often met in the neurotic and highly organized individual than in her opposite. Altogether too often the etiology is obscure.

With physical characteristics of a well-established contraction ring in mind its essential symptom and physical signs, as well as its influence on the clinical course of labor will be better understood. Arising from a broad base that encroaches upon upper and lower segments, it tapers toward the long axis of the uterus so rapidly that its upper and lower surfaces are slightly concave and its inner edge thin. Since its outside is fairly constant, being limited by the walls of the uterus, it is apparent that the amount of

An occasional third-stage complication of labor is incarcerated placenta with hemorrhage. More familiar as hour-glass uterus, its treatment on occasion has been unsatisfactory and it is known no less often to have entailed serious consequences. The term is applied to a placenta that is both *separated and retained* and therefore does not include the structure that is retained beyond the conventional 20 or 30 minutes either because contractions have not re-appeared with strength and frequency enough to cause its separation or because the physiological ring is sufficiently prominent to retard its expulsion. Explanation of the state in which the placenta is found and that of the foremost symptom namely persistent bleeding are offered by presence of a tonic contraction ring. Separated by a physiological contractile effort of the upper segment, the placenta lies free within the cavity of the latter the tonic ring making its expulsion impossible and from the *unretracted* placental site blood flows until momentarily checked by the infrequently recurring third-stage contractions. Characteristic of contraction ring dystocia is presence of a tonic ring and of an upper segment that contracts and relaxes. The two are met in and explain all features of incarcerated placenta.

The characteristic symptom is atypical pain. In presence of abnormality the ring occasions, it is reasonable to expect contractions to be as atypical as they are ineffectual. Pain characteristic of the dilating cervix disappears. It is felt at irregular intervals and with varying intensity not infrequently it becomes markedly propulsive as soon as obstruction is complete. All symptoms vary with position of the ring when behind the presenting part, pain is increased because of continuous pressure to which the interior of the pelvic cavity is subjected while, in ring-in-front cases, the presenting part is raised and contractions are characteristically less severe than in normal labor. A symptom that is no less common than it is striking is a degree of pelvic hyperaesthesia that makes simple vaginal exploration possible only as an anesthetic is employed.

Its position in relation to passenger and pelvis is the same as that of the retraction ring.

Complete obstruction is the immediate effect of appearance of tonic contraction ring. In that progressive dilatation ceases when the complication arises during the first stage and both spontaneous and artificial advance are rendered impossible with its appearance in the second the obstruction occasioned is identical with that the retraction ring is responsible for.

Delivery of impacted, and uncorrected breech presentation by traction at the groin is always difficult and entails an unnecessarily high fetal morbidity from fracture and nerve traumatism. Even with impaction reduced and the legs down, extraction begun in the presence of a trace of general retraction or persisted in after resistance to advance is encountered becomes more and more difficult as the shoulders are reached unless all contractile efforts are eliminated in the manner described.

In vertex presentations, the ease and safety with which delivery can be accomplished is determined in great measure by height of the presenting part. If at the outlet or in the

supplemented by diffuse downward pressure at the fundus.

With the presenting part in the high-mid pelvis, advance on occasion can be accomplished and labor terminated by conservative traction on forceps. With the head just engaged and even when at a lower level markedly increased tractive force is required to produce advance for the reason that both presenting part and lower segment are drawn into the inlet at the same time. If efforts at advance now are persisted in, the child's

the third stage is followed by maintenance of satisfactory postpartum tone and complete immunity from undue bleeding. In other words, the uterus postpartum resumes its condition of retraction at a time when such a state is highly physiological.

However, the state of artificial inertia may persist and to meet its untoward manifestation material for intra-uterine tamponade should be immediately available.

In *contraction ring dystocia* the most striking feature is tonicity that is isolated in that it is limited to the ring, the upper uterus manifesting physiological contraction and relaxation. It differs in this important respect from retraction ring dystocia, where the ring shares with general retraction the responsibility for lack of advance and where the upper segment manifests sustained activity or tone.

Another and even more important clinical difference has to do with character of the ring itself. In contraction ring dystocia its tonicity is increased. It presents a firmness that may be described as board-like, and it resists efforts at relaxation far longer than does the ring in retraction. Further its sharp (inside) edge contrasts markedly with the blunt or even rounded margin of the retraction ring.

Physical characteristics of the ring, combined with the fact that it is met associated with an upper segment that is not retracted make possible a syndrome and a clinical course that are so peculiar to contraction ring dystocia that the latter and retraction ring dystocia may well be considered separate clinical entities.

Such a view is tenable even though the two complicate the same case. It is consistent even though in each the same pathological structure is the essential element of obstruction, the same etiological factors obtain, and the same general treatment is indicated. The respects in which the two resemble one another do no more than establish closeness of their relationship.

The actual cause of contraction ring dystocia is stimulation of circular muscle fibers, at junction of upper and lower segments, to tonic contraction and its occurrence

experience with cases where the vertex is arrested high up that fetal mortality and maternal morbidity are lowered as version and extraction are done following a single, unsuccessful attempt at producing advance by means of forceps.

Following delivery persistent, gentle massage of the fundus can be counted upon to cause return of contractile efforts that, for purposes of placental separation and expulsion, are physiological while termination of

in the individual case suggests either faulty innervation or irregular stimulation of an orderly nerve supply. Since the condition did not recur in a second pregnancy in one case and was met for the first time in a second pregnancy in another it is reasonable to conclude that in the cases cited at least, quite normally innervated muscle behaved abnormally. Though excitation to abnormal muscular activity could arise from irregularities of presentation and position from disproportion from premature rupture of membranes and from the irritating effects of oxytocics, hydrostatic dilators bougies and the like, the fact that the condition has been met where none of the factors mentioned has obtained where labor was both premature and spontaneous and where membranes were intact, makes reasonable the assumption that the conditions mentioned are predisposing rather than actual or existing causes. As might be expected the condition is far more often met in the neurotic and highly organized individual than in her opposite. Altogether too often the etiology is obscure.

With physical characteristics of a well-established contraction ring in mind its essential symptom and physical signs as well as its influence on the clinical course of labor will be better understood. Arising from a broad base that encroaches upon upper and lower segments it tapers toward the long axis of the uterus so rapidly that its upper and lower surfaces are slightly concave and its inner edge thin. Since its outline is fairly constant being limited by the walls of the uterus, it is apparent that the amount of

An occasional third-stage complication of labor is incarcerated placenta with hemorrhage. More familiar as hour-glass uterus, its treatment on occasion has been unsatisfactory and it is known no less often to have entailed serious consequences. The term is applied to a placenta that is both *separated and retained* and therefore, does not include the structure that is retained beyond the conventional 20 or 30 minutes either because contractions have not re-appeared with strength and frequency enough to cause its separation or because the physiological ring is sufficiently prominent to retard its expulsion. Explanation of the state in which the placenta is found and that of the foremost symptom, namely persistent bleeding are offered by presence of a tonic contraction ring. Separated by a physiological contractile effort of the upper segment, the placenta lies free within the cavity of the latter the tonic ring making its expulsion impossible and from the *unretracted* placental site blood flows until momentarily checked by the infrequently-recurring third-stage contractions. Characteristic of contraction ring dystocia is presence of a tonic ring and of an upper segment that contracts and relaxes. The two are met in and explain all features of incarcerated placenta.

The characteristic symptom is atypical pain. In presence of abnormality the ring occasions, it is reasonable to expect contractions to be as atypical as they are ineffectual. Pain characteristic of the dilating cervix disappears. It is felt at irregular intervals and with varying intensity *not infrequently* it becomes markedly *propulsive* as soon as obstruction is complete. All symptoms vary with position of the ring when behind the presenting part, pain is increased because of continuous pressure to which the interior of the pelvic cavity is subjected while, in ring-in-front cases the presenting part is raised and contractions are characteristically less severe than in normal labor. A symptom that is no less common than it is striking is a degree of pelvic hyperaesthesia that makes simple vaginal exploration possible only as an anesthetic is employed.

Its position in relation to passenger and pelvis is the same as that of the retraction ring.

Complete obstruction is the immediate effect of appearance of tonic contraction ring. In that progressive dilatation ceases when the complication arises during the first stage and both spontaneous and artificial advance are rendered impossible with its appearance in the second the obstruction occasioned is identical with that the retraction ring is responsible for.

Considered in the order in which they are elicited physical signs are referable to cervix, membranes, presenting part and the ring itself.

Since contraction ring dystocia almost invariably is a complication of the late first stage, the cervix is found dilatable and subsequent examination shows it to have failed in progressive dilatation in the presence of active though atypical contractions. Complete obliteration of the internal os indicates late first stage and shows the cervix to be dilatable. On the other hand extent to which the external os is dilated is important only as it fixes the time when obstruction became complete and dilatation ceased while its feel depends upon condition of the membranes. External os and lower segment seem firm only when membranes under tension distend them.

In the majority of cases seen early membranes are intact. With tonicity limited to the ring, tension within the sac will not be increased and spontaneous rupture of membranes will be deferred if the fluid has additional space into which it can be directed. Compensatory dilatation of the inactive lower segment makes such displacement possible. Two other factors contribute toward maintenance of membranes intact: first, tight grasp of the ring behind the presenting part lessens pressure in the anterior amniotic chamber in much the same way the presenting part exerts its ball valve action in normal labor and second marked decrease in contractile efforts characteristic of location of the ring in advance of the presenting part tends to preserve the membranes intact. In the latter type of case it is not unusual to find the sac intact and protruding through an external os quite completely dilated. Were the membranes to rupture coincident with or after

diameter. The presenting part advances against or recedes from the external os as the developing ring meets the head behind or in front of its biparietal diameter just how far and how soon depending upon size and strength of the ring. In the same way though to a less extent grasp of the ring near the intertrochanteric diameter influences ultimate position of the buttocks in presentation by the breech.

result in increasingly close approximation between head and external os but recession is met in but one other condition, namely rupture of uterus. However clinical picture of the latter is such that the two would never be confused. Recession has further significance. If carried far enough by increasing tonicity of the ring it is possible for the presenting part, particularly in vertex presentation, to be lifted out of the pelvis and maintained by the same force at the high level, for a secondary transverse presentation to result. In two instances the condition mentioned has been met. In each case the malpresentation was known to be secondary; it could be accounted for by nothing done to or by the patient who was under hospital care and it was found to be associated with tonic contraction ring. The occurrence, then, of secondary malpresentation not otherwise accounted for may be considered presumptive evidence of contraction ring dystocia. No other condition explains as perfectly what has happened. Tonic contraction ring disengages the presenting part and the relaxed upper segment makes subsequent spontaneous version possible. No such sudden change in the clinical aspect of labor is possible in tonic

), expect them to remain intact indefinitely. Sooner or later they rupture when consequent general retraction should be considered an added complication rather than a characteristic manifestation of the condition. Premature rupture of membranes is met in contraction

In recession of the kind described ultimate location of the ring will be found in advance of the presenting part. Indeed with a ring located 7 or 8 centimeters beyond the external os and with the entire lower segment empty it is logical to conclude that the presenting part has been made to recede, that

front of the bisacromial diameter of the child the presenting part recedes but only for the short distance necessary to bring the neck on a level with the ring. The latter then sets itself up between head and shoulders and further recession is impossible.

Signs referable to the ring are characteristic. Increased muscular firmness is met as the examining hand advances, is directed by the board-like concave, inferior surface of the ring toward the uterine mid line and finally reaches the sharp edge of the ring in intimate contact with the child's body. In eliciting them it must be remembered that the tonic zone of muscle may not completely encircle the interior of the uterine cavity but may be prominent as a crescentic ledge to the right or to the left or rarely on the anterior or posterior wall. Further a transverse furrow practically never is noted externally for the reason that the anatomical location of the ring is on a level with or just below that of the pelvic inlet. The rare instances where a shallow transverse depression is noted in the lower uterus are cases in which the ring either is complete or forms along the anterior wall in the first place, and in which its location invariably is above the inlet in the second. Even if noted its position remains permanent for the tonic contraction ring does not rise.

Finally when the ring forms behind the

Appearance of a new presentation and transition to retraction of the upper segment have been mentioned as manifestations of the clinical course of unrecognized and untreated contraction ring dystocia but secondary malpresentation is not usual nor is rupture of membranes characteristic. Further doubtless few cases are diagnosed and the question at once suggested is: Why if the condition is a major complication of labor is its discovery so rarely made? To it there are two answers. First, in the presence of no apparent cause of so complete obstruction, attempts at operative advance are persisted in until delivery is accomplished probable damage to mother and child being charged to the extreme difficulties encountered. In none other than an unrecognized case of tonic contraction ring is it conceivable that dangerous and obsolete embryotomy would be done. Second, if the obstruction occasioned by tonic contraction ring is not diagnosed if membranes remain intact, and further if no attempts at forcible delivery are made spasm of the muscle may be expected in time to pass off when, with removal of obstruction and return of contractile efforts labor may terminate spontaneously. The occasional case where active labor has ceased and an interval of several days has elapsed before returning contractile efforts result in spontaneous delivery may possibly be explained on this basis.

Contraction ring dystocia is to be suspected in cases of second stage delay where all other causes of obstruction have been eliminated or where those that persist cannot explain the difficulty and search for a tonic ring made at once. So closely may the lack of advance simulate that due to inertia and, again, to retraction that differential diagnosis often is possible only as region of the ring is explored arbitrarily for evidence of toxicity. Little difficulty is offered where inertia is actual, for there is a history of physiological contractions progressively decreasing in frequency and in intensity and signs referable to the ring are negative while, with inertia relative moderate disproportion between passenger and pelvis is apparent. The contractions in retraction ring dystocia are not unlike those

is employed to relieve pain and to relax muscular spasm of the soft parts

met in tonic contraction ring. However appearance of tone in the upper segment and the fact that the membranes have ruptured make the diagnosis of general retraction presumptive.

When primary malpresentation and pelvic contraction are complicated by tonic contraction ring, diagnosis of the latter may be missed because the former are thought adequately to explain the delay. In cases of the kind knowledge that the ring is not in tonic contraction is of inestimable value. Were its tonicity to complicate the situation, the ring becomes the primary cause of obstruction because until it has been made to disappear it is impossible to carry out operative treatment the associated abnormality demands.

Granted a tonic contraction ring has escaped detection and conservative attempt at traction on head or breech has been made without producing advance the possibility of uterine obstruction must be considered and region of the ring palpated for evidence of tonicity.

Treatment of contraction ring dystocia is simple and satisfactory provided two demands are met. They are first, immediate removal of the tonic ring as the obstacle to advance and second maintenance of a state of complete uterine muscle relaxation. Importance

capable of response to stimulation, some measure of which is invariably occasioned even by the most careful operative delivery. The only impassable ring the writer has met was one that reappeared following a con-

tractions in all varieties of uterine overaction is absolutely contra-indicated.

Under sufficiently deep and prolonged ether anesthesia, the ring eventually fades

does nothing more than accentuate tonicity and further it is unnecessary. When the

lower segment including the ring is thinned out and relaxed treatment appropriate to stage of labor to presentation and position, and even to such an accident as prolapsed cord may be begun. Because of the danger of returning tonicity it is desirable if possible to proceed with immediate delivery. However at even a suggestion of returning tonicity all manipulation must be discontinued until deeper anesthesia makes it possible to proceed without meeting muscular resistance. Subsequent operative treatment is governed by the same general principles that have been considered in connection with retraction ring dystocia.

Abdominal cesarean section has been per-

through the usual high uterine incision was possible is proof that resistance the ring offered eventually was overcome. Success here may reasonably be attributed to the deep anesthesia under which the operation was done. If during section the ring became passable the original contention that the ring could not be passed may not be maintained. With an impassable ring in front of the presenting part the writer has had no experience all have been found to yield to

With treatment based upon the principles described the fetal and maternal mortality and morbidity of contraction ring dystocia itself are negligible.

The foregoing is written with the firm conviction that tonic contraction of Bandl's

signs other than those referable to the ring itself. It is presented with the hope of inspiring increased interest in a complication of labor that entails high fetal mortality and morbidity when its presence is unrecognized and the obstruction offered by it is met by sheer tractive force.

EFFICIENCY IN THE DIAGNOSIS OF NEOPLASMS¹

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QUESTIONS have often been asked for the purpose of formulating a plan by which they may be answered and the one which I am about to ask and shall attempt to answer is: Have we as a profession reached our greatest efficiency in the clinical diagnosis of neoplasms? We have spent a great amount of time and some money trying to educate the public on the frequency of cancer and other detrimental conditions but have we sufficiently taken stock of our efficiency in recognizing the condition after the public has come to us? With the aid of surgery, roentgen-rays, and radium we have some idea of what we can do in treatment, although these agents are still in an experimental stage. There is one generalization which may be safely and fairly made, and that is: the earlier the stage of the neoplastic growth the more readily it responds to treatment, which means that we must attempt to improve our diagnostic methods so that we shall be able to recognize all malignant and potentially malignant conditions early.

I have no means of determining your diagnostic efficiency but I have had the opportunity of studying the efficiency of a group of well-trained comparatively young men, all graduates of Class A medical schools in this or other countries and I dare say that their diagnostic ability is equal to at least that of the general medical practitioner. I have taken as part of my material the results of a comparative study of the pre-operative instructions or diagnoses and the

are somewhat startling to those of us who have prided ourselves blindly on our diagnostic ability. By way of soothing our offended pride I might say that these data are a credit to our profession if we are willing to admit that there are physical limitations to the diagnostic capability of our five senses. Our chagrin might be lessened also by the fact that when clinicians make a positive diagnosis of a malignant condition they are correct in 94.5 per cent of the cases and this is the percentage we like to quote; it is however not the index of our diagnostic efficiency so far as the patient is concerned.

TYPES OF DIAGNOSES

| | |
|---|------|
| Number of breasts | 1100 |
| Percentage of positive pre-operative clinical diagnoses | 76.3 |
| Percentage of doubtful or questionable pre-operative clinical diagnoses | 3 |
| Percentage of negative pre-operative clinical diagnoses | 94.5 |
| 1 | 3.3 |
| | 62.3 |
| | 27 |
| | 85.3 |
| | 21.3 |
| | 3 |
| | 17.3 |
| | 17.7 |
| | 77 |
| | 49 |
| | 30 |
| | 30 |

The 21.5 per cent of doubtful diagnoses means that, after all known methods of diagnosis have been tried there still remains 21.5 per cent of the breasts in which an honest clinician is not willing to attempt to fool himself. He is willing however to admit this percentage and express himself in one of four ways: by making a diagnosis followed by a question mark, by using in definite terms such as nodule, growth or mass, by writing "no diagnosis" or by

THE MAMMARY GLAND which is very superficial easily palpable, easily visible and one of the most common sites of benign and malignant neoplastic conditions. The tabulation presents certain facts in terms of percentages which

suggesting that the specimen be removed for diagnosis. He expresses a suspicion of malignancy in 50 per cent of all his doubtful diagnoses, which leaves the making of the diagnosis to some one else. The fact that 21.5 per cent of his diagnoses are doubtful and that he expresses a suspicion in his doubtful diagnoses suggests that he must expect a diagnosis to be made either by the surgeon, who operates, or by an associated surgical pathologist or some general pathologist. Now suppose you are the surgeon and have no surgical pathologist, what are you going to do with the 21.5 per cent and the 50 per cent? This is the question which every surgeon faces. When also facing the fact that only 51 per cent of the breast tumors are malignant and that 94.5 per cent of your malignant diagnoses are correct, what is your scientific criterion for operative procedure? Maybe you will say that in a doubtful case at or above middle age it is best to do the radical operation. It is better you might think, to sacrifice a few benign breasts for the sake of radically treating those with cancer. This is a very old way of reasoning and is one which, undoubtedly, is justifiable. If there were no way to avoid it, but there is a way whether you have it or not. You are not to be condemned if you haven't it, but you are to be condemned if you do not attempt to have it. The patients with the doubtful diagnoses and the 5.5 per cent of mistakes can be efficiently taken care of. I have seen more than one surgeon who sought this aid for members of his own family when he did not seek it for his patients. In the whole series of 2100 breasts which were studied, not one was unnecessarily treated too radically and not one failed to receive a radical operation when necessary, and this came about by virtue of the fact that all cases were checked at operation by a surgical pathologist.

Now there are certain reasons why all breast cases are not checked: (1) you may not have a pathologist; (2) you may not have tried to have a pathologist; (3) there may not be a pathologist near you; (4) you may think you are a great pathologist especially a great gross pathologist in which case

you simply incise the tumor immediately after its removal and pass judgment. (5) you may not believe in frozen sections; (6) your practice may not be large enough to allow you to pay a pathologist; (7) you may be depending upon the hospital to supply you with a pathologist; (8) you may have lost faith in pathologists because you have had sad experiences with men who call themselves pathologists, or with the so-called interne pathologist who happens to be sojourning in the hospital for a year or two doing everything in the categories of tissue pathology, bacteriology, serology, clinical microscopy and some times roentgenology.

These are all reasons, but they are not all good reasons why your patient should not receive the same diagnostic efficiency you are apt to give your wife, daughter or other members of your family. Now what is the solution of this problem which we as the medical profession must face and try to solve?

The first reason which has been mentioned is your fault and it is not your fault. Pathologists are rare and becoming rarer. I believe for several reasons many pathologists have been attracted to serology, immunology and bacteriology because they are new sciences and apparently offer greater fields for investigation. The pathologist being of a rather retiring disposition has not seen fit to force his wares upon you and demonstrate his value. You have, as practitioners, not morally or financially encouraged young men to stay in pathology. Tissue pathology is also a new science and is the victim of much observation, chaotic nomenclature, multiple classification and crude methods of studying tissues. The pathologists who are at the top today are necropsy pathologists and know little about fresh tissues. Most of them are teachers and spend too much time in teaching by the time the modern sense

The second reason may be due to that lethargy which exists among all classes of human beings. It is not characteristic alone of the medical profession.



FIG. 1 and 2. Cancer cells in the mammary gland as they appear in fresh tissues with the oil immersion lens.

The third reason may be explained as was the first.

The fourth is worthy of a few facts. It is a form of overconfidence from which many surgeons, even good surgeons, suffer. By way of clarification some figures might be stated. In a series of 60,645 general patients, 24,368 (40 per cent) came to operation, and 21 per cent of all patients presented surgical pathological specimens of which 21 per cent required a microscopic examination before the correct diagnosis could be made and before scientific therapeutics could be administered. Six and eight-tenths per cent of the specimens removed at operation were removed for diagnostic purposes before further operative procedures were carried out. Perhaps, you as surgeons, are great gross diagnos-

ticians but if so you must account for the 21 per cent of diagnoses which must be made with a microscope. I know of a surgeon who at the end of the week, examines all of his own specimens; this is very commendable but if he picks up a mistake he must submit his patient to a second operation, a point in efficiency which might be improved on from the patient's standpoint.

The fifth reason is legitimate if you have clearly and completely endeavored to convince yourself to the fullest possible extent that frozen sections are not to be depended on. There are some things about frozen sections which must be put down as essential. Good reliable frozen sections cannot be made from tissues that have been dead much over an hour. In fact I have seen cells disintegrate



FIG. 3. Cancer cells in the uterus as they appear in fresh tissues with the oil immersion lens.



FIG. 4. Intra-axial hyperplastic cells (secondary cytoplasia of MacCarty) in fresh tissues in the breast.



Fig. 5. (Fig. 5) the breast mounted with small extracapsular stellate carcinoma (see arrow)

in less time they must not be fixed they must be cut with a sharp knife and they must be handled in normal saline, and mounted in such an isotonic solution as Brun's glucose. When made by this method the cells are more beautiful than any fixed

as there is between studying stuffed bird skins and the birds in the trees. It is certain that a knowledge of fixed tissues will assist one in understanding the unfixed fresh tissues but the cells are very different. A pathologist who has had all of his training with fixed tissues will undoubtedly have some difficulty with unfixed fresh tissues just as an ornithologist who has been trained only with stuffed skins will have difficulty with birds in the trees. However valuable both fixed tissues and stuffed skins might be I feel about the tissues as I would about birds if I were an ornithologist. I should prefer to obtain knowledge from things as they are in their living state or as near the living state as possible.

The sixth reason why you might not give your patient the benefit of improved efficiency deserves a suggestion. If your practice is not large enough to afford a pathologist then you might join your forces with one or more surgeons especially those practicing in your hospital and have a pathologist together.

The seventh reason your dependence on the hospital for your pathologist might be considered a legitimate one provided you try to assist and influence your hospital authorities in their attempt to see the value of one. In this day of standardization of hospitals many are endeavoring to obtain good pathologists the demand is much greater than the supply. Perhaps your hospital has tried have you suggested that some young man be trained for the position? Have you attempted actually to make such a position attractive or have you simply thought of it as a fine thing but have not utilized your ability to execute your thoughts?

The eighth and last, reason you have a

within five hundred years of being able to do surgery. It had its real inception in the middle of the nineteenth century your profession is as old as human written history. Yours is not yet perfect you can hardly expect pathology to be perfect. It has grown out of a comparatively recent German rejuvenation of the ancient Greek method of making observations, giving names, and

quite different in different lands and text books. There has been no great principle upon which pathology might be made an exact science. Thus we hope will be one of the products of the twentieth century. It is possible that it will grow out of seeing cells as they are in the body and perhaps modern operative surgery will be the condition which will bring forth a new epoch in the history of our youthful science.

Now that we have seen the reasons why you have not a surgical pathologist and shown

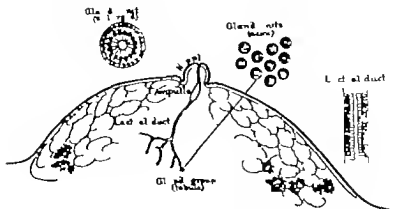


Fig. 6. A diagram of the breast showing the two types of cells which normally line the ducts and acini.

that there is a certain significant percent age of your patients in which he can and should be of service to you and to them. I must tell you some of the requisites which you and your pathologist must possess in order to make a combination successful. The man you select to become your surgical pathologist must first be young; he must be interested primarily in doing something for your patients; he must have some knowledge of the principles of surgery and surgical technique; he must be interested in studying pathology for the benefit of your patients while you are treating them. He must realize that his work requires speed just as your operative procedures require speed; he must, however, be enough of a man never to sacrifice accuracy for speed when he does not know he must be willing to say so; if he cannot make a diagnosis he must never guess. He must be present constantly while you are operating and must have access to all your clinical data, the patient, and your experience and judgment. As one well-known surgeon has said, "The pathologist is not a clairvoyant; he must have the facts." With these qualifications he can be of great value. If he happens to be endowed with the desire and ability for scientific investigation, his field is unlimited; there are new things to be discovered and methods to be improved in tissue pathology. Charrin the last of the Rokitsansky pupils said, "Die Pathologie

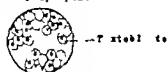
der Gewebe ist in Ihren Anfang" and thus, I have found in my experience to be true. There is so much to be done that it is staggering to any one who is trying to do it. Your reports of your cases will be more complete and your own interest made greater if you have the proper man as your associate. Since it takes two individuals to make this combination work efficiently and since you, as the surgeon, are a part, there are some things which must be required of you. You must be generous and charitable; you must not only assist but you must encourage your surgical pathologist. Do not slur at his diagnoses when they differ from yours. If he is incorrect, as doubtless he will be sometimes, remember that you have made mistakes and he knows it just as well as you do, sometimes better than you do. If you find something interesting or unusual while you are operating or perhaps in your reading, always call his attention to it. He may not have time to utilize it at the time, but if he is the right sort he will store it away in his mind or in notes for future reference; a reference which might some day reflect great credit upon you, your clinic, and the medical profession.

Now that we have had a clear understanding between us, let me tell you just one thing which is new in efficiency in diagnosis which the proper surgical pathologist might well try out. Let us suppose that you are

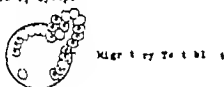
Primary Cytoplasm



Secondary Cytoplasm



Tertiary Cytoplasm



and no
matron
of a ma

conditions in the breast. No one has seen these signs and many show none of them a group which is becoming larger as the public and family physicians become educated. Many cases of diffuse chronic mastitis are associated with carcinoma of which there are no local palpable manifestations, and many benign palpable tumors such as fibro-adenomata and cysts are associated with minute carcinomata (Fig 5) which may easily be

overshadowed and missed by too much attention to the tumor itself and too little search of the whole specimen during the operation. In doubtful cases I personally do not believe it is fair to perform a radical operation but it is fair with our present

studies made by Sistrunk and myself do not reveal anything detrimental to the patient by this procedure even when cancer is present. Such a specimen can be studied carefully for three definite histological pictures which, whether the general pathologist accepts them or not, have the greatest practical value and are based on tangible biological facts. Thus the lining of the ducts and acini of the breast consists normally of two layers of cells (Fig 6). Sometimes, in chronic mastitis, which is always present in carcinoma in my experience, the inner row of cells is partially or completely destroyed and is associated with an hyperplasia of the outer row of cells which are morphologically identical with the cells of cancer. Whether or not they are cancer I do not know but sometimes these same cells are found not only in the acini or ducts but also in the surrounding tissues, a condition which any pathologist would be willing to call cancer. If your pathologist finds the two layers of cells (Fig 7) he is dealing either with a normal condition or one in which there is a reaction to some disturbing factor. The condition of these cells varies in their relationship to

radical operation is unnecessary. On the other hand however if the hyperplastic cells of the outer row have invaded the stroma there is no doubt that a malignant condition is present and that with our present knowledge a radical operation should be performed. The condition, in which the hyperplastic cells have not invaded the stroma (a diagnosis which should be made only after the most thorough and detailed microscopic examination) is one open to question. Should we or should we not per-

form a radical operation? My experience to date seems to indicate that the removal of the mammary gland-bearing structure is all that is necessary. I have never seen a recurrence after such an operation. We have seen therefore that there is something new in surgical pathology and that something new has evolved out of the association of a pathologist with the surgeon. It is just such types of service which the surgical pathologist can and should render you and your patients during a single operation. By this means the 55 per cent of mistaken diagnoses, the 21.5 per cent of doubtful diagnoses and the necessary 21 per cent of microscopic diagnoses can be taken care of efficiently without the slightest detriment to your patients.

In conclusion may I state that the medical profession as a whole has not reached its greatest efficiency in the diagnosis of neoplasms, but that we have a method by which our efficiency

All that is efficiency or courage in the making of surgical pathologists with the ideals which have been enunciated

next 5 sented public service of which we might well be proud. If we do not then we must go along in the same guessing fashion which I know is not the desire of the majority of the profession. What has been said of the breast is quite as true of the other organs and tissues of the body.

ROUND WORM (ASCARIS LUMBRICOIDES) IN GALL BLADDER

By A. P. BUTT, M.D., F.A.C.S., ELLEN, WEST VIRGINIA

THE tendency of this parasite to migrate is known to all physicians. The *Index Medicus of Medical and Veterinary Zoology* contains nearly five pages of references labeled "erratic found in migrations of." Likely it was one of the very first parasites to be observed by the early physicians, yet even now some points in its history remain more or less in doubt or at least disputed. Of these I note the following: age, life cycle, presence or absence of intermediate host, harmful or harmless.

I have been unable to find any estimate of its age. They are said to obtain sexual maturity 10 or 12 weeks after the ova have been swallowed. (1) Taylor and Freeman say there is no intermediate host. Huber (2) says: "It may be positively affirmed that ova which contain embryos and which are still surrounded with the mulberry envelope, will develop into round worms in the human intestine." Professor Stiles (3) says: "The eggs of the ascaris will not hatch as long as they are in the human body. They must pass out and there undergo their changes.

The young worm is developed inside the egg; the egg is then swallowed, hatches out in the stomach, crawls through the wall of the stomach, gets into the circulation, goes to the heart and lungs up the trachea, down through the stomach to the small intestine where it develops further.

It seems incredible that any dispute concerning its power to harm should ever have existed, yet such is the case. Of its alleged harmlessness Huber says: "This may be true in certain instances among children of the better classes in the cities with good water supply, but one engaged in country practice

will soon be persuaded that the alleged harmless guest is often the cause of fatal disturbance. In three cases of my own operated upon for appendicitis I found the round worm once, twice I found seat worm (*ascaris vermicularis*). Schloessman (4) reports eleven cases in which operation was required for evil done by ascariades. If at operation the worms are found inside the gut he strongly advises against opening it. Let antonin do the work.

The literature is replete with reports of the presence of this parasite in the biliary ducts. Huber in his bibliography reports 68 cases of invasion of the bile ducts. In one case the number of worms that had passed up from the intestine was eighty. The ova have been found in the ducts and in the gall bladder and worms as small as $1\frac{1}{4}$ inches have been found (5). It is true these worms were found at necropsy and therefore the evidence is not quite so convincing as if found during life.

Rodlansky (6) reports an interesting case in a cretin of 9 years. The hepatic and common ducts were sausage-shaped more than an inch in diameter and filled with worms. They had found their way into the smaller ducts two were found in the duct of Wirsung.

A. Degorce (7) reports a case of violent hepatic colic recurring for 7 years. At operation many biliary calculi were removed from the common duct. Operative recovery with death 6 months later from pulmonary tuberculosis. Necropsy showed about forty stones in biliary passages all of which contained eggs of the round worm. On section one of the largest stones contained a filament 1.5 inches long which proved to be a small ascaris. Notwithstanding the numbers of this parasite which have been found in the biliary passages, the occurrence of a living worm in the gall bladder during life seems to be rare. After a search which, however was

the to lder
this is not to be wondered at.

Deaver (8) says "In a normal condition of the duct it is impossible to carry the smallest probe through it owing to its double course and the peculiar condition of its mucous lining."

D. Loebe (9) reports a case in a boy of 9 who had been treated with antonin for helminths. Five months later there was jaundice and pain, at operation a round

worm was found in the gall bladder and three more in the hepatic duct all alive. Two more were extracted from biliary passages 11 days after operation. This last statement indicates either a drainage operation or necropsy.

Mrs. C. C. White, American housewife, age 30, mother of three children, youngest two, entered the Illinois City Hospital, August 30, 1911 for relief of severe pain in the right upper quadrant, of 6 days duration. Her first attack of a similar nature had been in 1910. Since this she had had 5 like attacks. A diagnosis of cholecystitis with

vigorously. I regret that no effort was made to ascertain it was. No calculi were found. Both gall bladder and abdomen were closed without drainage. In a letter dated December 20, 1911 the patient writes me that she passed many worms previous to operation none since. She declares she is perfectly well and that she has had no pain since operation.

Since we know from Degorce's case that the eggs may become a nucleus for the formation of stones it seems to me to be better treatment to perform a cholecystectomy or a cholecystotomy than cholecystotomy.

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DEPARTMENT OF TECHNIQUE

RADIO THERAPY IN CARCINOMA OF THE BREAST¹

BY GEORGE F. PFÄHLER, M.D. PHILADELPHIA

THE surgeons deserve great credit for the thoroughness with which they have studied carcinoma of the breast. Books have been written by such masters of the subject as Bryant, Deaver, Handley, Lewin, Rodman, Shield, and Williams. In fact, practically all that is known about carcinoma of the breast has been studied and written by the surgeons and the pathologists. Their information has been obtained by actual touch and sight, and at first hand. The surgeons have carried this same thoroughness into their operative technique and have made their excisions more and more extensive with the object of eliminating every particle of disease. Yet at present practically all surgeons acknowledge that they have reached their limit and the limit to which surgery can go. Even with all that has

a whole, it is found that only 21 patients out of 100 as they come, have a chance for cure by surgery alone, and the other 79 can be expected to die of carcinoma. Therefore, with all that has been accomplished by surgery there is much to be desired, and any means of treatment that can be combined with surgery or used independently to cure or give hope of curing the 70 per cent that will otherwise die should be used with all the earnestness at our command.

Radiation in the treatment of carcinoma of the breast is not new. The roentgen-rays were first used in the treatment of carcinoma of the breast

to be at the time of operation nor do the most complete operative procedures in such cases insure freedom from recurrence. When the disease is localized to a small area of the breast and the case is in other respects a suitable one for operation, we may be led to hold out the hope of surgical cure only to have the patient die of early metastatic involvement of the viscera."

Even with the best operative technique, and in the most skillful hands and the greatest care, the actual operative mortality is about one per cent. Of the patients that come for operation or that come to consult the surgeon 25 per cent are probably inoperable. If the patient is in the hands of a skillful surgeon and is operated upon before the disease has extended to the axilla or

that time or to be exact 360. When I was first invited to present this subject it was my ambition to review all of these cases and to trace as far as possible the patients dead or alive so that I

treated previously to 1918 and taking them in alphabetical order I concluded that the task was too stupendous for the time at my command. I am hoping still to complete this review at least for my own satisfaction. I doubt very much however that such a review will give us much that is of value from a statistical standpoint because the units that make up the statistics are so irregular that the total must be almost worthless. As we look at the subject today the technique that we used in the early days was so imperfect that it is surprising that any results, even though temporary, could be recorded. Yet even in those early days we saw primary tumors shrink and recurrent masses disappear. Generally the patients that were referred for treatment, if primary were extremely far advanced. The recurrent cases were generally referred for treatment after the recurrences were extensive and

¹ 21. If the disease however has spread from the breast and has extended to the axilla or anywhere else not more than one out of five will be cured. Therefore, when the subject is studied as



Fig. (a.bove) Case 5 Showing recurrent nodules

18, 922

had existed for several months. With regard to the postoperative cases, only the extremely bad

great extent these criticisms are still true. Our technique is far from perfect, though I would

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value and the mortality rate from cancer will decrease.

Radiotherapy in carcinoma of the breast may be considered under three headings: ante-operative, and post-operative.

radiation in cancer of the breast The object of the ante-operative treatment is to devitalize the cancer cells so that they cannot easily develop locally or so that they cannot easily grow if transplanted during the process of operation. Numerous experiments to show that such action takes place in cancer tissue exposed to the X-ray will be found recorded in the book by Colwell

usually event takes place. A thin slice of tumor about 2 millimeters thick was placed between two sterilized sheets of mica. The tumor was moistened with normal saline and enclosed by a vaseline ring which prevented evaporation. This was placed between two radium capsules, giving an intensity of radiation equal to 2.2 milligrams of radium bromide per square centimeter. An initial exposure lasting 4 hours, to the composite rays from the radium prevented the subsequent growth of the tumor when it was transplanted into five mice, a control portion of the original tumor "taking" in all of the inoculations.

Nogier Jaubert, de Beaujeu, and Contamin

1
removal from the animal

— 1 was negative.

results are to be accomplished. Such judgment and skill can only be used to best advantage if



Fig. (a) Case 5. Destruction of lower two thirds of sternum by metastatic carcinoma, May 24, 1921

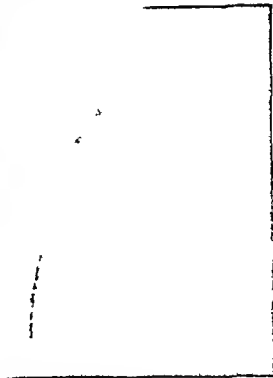


Fig. (b) Case 5. Showing complete recalcification of the sternum, and healthy

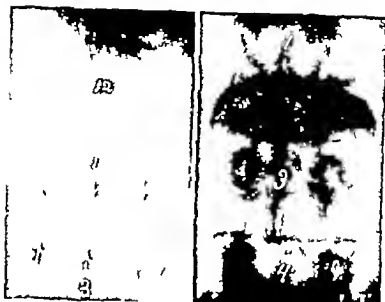
may not be much reduced, the rate of growth of the tumor is much lessened.

Technically it is probably impossible for us at present to carry rays into the tissue in such a manner as to have 50 per cent absorbed by the tumor. We have many technical difficulties to overcome in order to carry our radiation into the deeper tissues sufficient to destroy the cancer cells without doing damage to the overlying tissue. Otherwise there would be no question as to the efficacy of radiation treatment. Francis Carter Wood has done some interesting experiments on mice with mouse carcinoma. At the recent meeting of the American Radiological Society he made the statement that it took six erythema doses to kill all of the cancer cells, but that a sublethal dose will retard the development of an

All radiologists have seen malignant disease disappear under the influence of radiation. Everyone recognizes the destructive effect the rays have upon malignant cells. Therefore, since those clinical observations and experimental investigations show a devitalizing effect upon malignant cells, we are justified in recommending that the rays be used for this purpose preceding operation as I have been doing for a number of years. We all know that with the photographic plate the effects of light are not shown until the plate has been developed, but we also know the effect of the light only lasts while the shutter of the camera is actually open and ends as soon as the shutter is closed. So too with the malignant cell the effect of the rays takes place while the tissues are actually under its influence and the total effect has been produced as soon as the current of electricity has been turned off from the

cell. If taken, the tumor will develop to the size of a pea in a week. If it has previously been given a sublethal dose of rays it will require 3 months before this tumor develops to the size of a pea.

microscopical examination is made. Since the effect on the cancer cells is ended as soon as the



producing as great a relative depth dose as in

ent technique such treatment would require approximately four hours' exposure. If this were done one would expect great prostration from radiation sickness. Some patients do not develop radiation sickness but none of us can tell which ones will. At any rate such radiation sickness would make the patient unfit to go through with an operation at this time. Therefore it is my

4 weeks from the beginning of the radiation. The object of the postoperative treatment is further to devitalize the cancer cells and to prevent the growth of the newly implanted tumor or of the remaining cells which may not have been reached by the surgeon's knife. That is, the rays tend to further devitalize the metastatic lymph nodes in the neighborhood of the tumor and gradually to encapsulate them by fibrous tissue. Apolant, in 1904, was one of the first observers of the effect of the rays from radium upon tumors in mice.

power 1200 rads. On 10/10/10 were observed under these conditions with adequate control. Out of 19 tumors treated for various periods of time, 11 disappeared and a diminution occurred in the remaining 8. Of the 17 controlled tumors, 2 suffered spontaneous absorption and the remaining 15 showed progressive growth. Apolant concluded on a biological

grounds that the destruction of the carcinoma cells was not a sequel to the proliferation of the connective-tissue cells, but that it was due to a direct action of the rays upon the parenchyma. Contamin has exposed tumors in mice to X-rays under various experimental conditions, and records some interesting results. The tumor selected was a carcinoma of glandular type. The mice bearing the tumors were placed at a distance of 12 centimeters from the anode of a bulb running at 9 to 12 centimeter spark gap the rays being filtered through 0.2 millimeters of aluminum. Tumors as large as the mice bearing them were eventually seen to disappear after they had received an exposure of 1 hour. Tumors in a stationary condition were not affected in any way by such treatment. As the result of a number of observations by Contamin he came to the following conclusions: (1) the action of X-rays is the greater the younger and more actively growing the tumor is (2) the disappearance of a large tumor causes the death of the animal, probably by intoxication. The disintegration product of the cells which have been injuriously affected by the rays is eventually absorbed by the body in the case of excessive quantities this leads to a state of intoxication.

All of us have seen recurrent cancer tissue disappear under the action of radiation. All acknowledge that the younger the tumor the greater will be the action upon the cancer cells. These clinical observations and the experimental evidence which has been produced argues strongly in favor of the postoperative treatment to be given just as soon as is practical after the operation, which is usually at the end of about 2 weeks. If no ante-operative treatment has been given and the treatment can be given in the hospital in which the operation has been done. I would urge that the treatment be given just as soon as the patient can be moved from the ward to the laboratory.

About 10 years ago in connection with the late Dr. William L. Rodman we treated a number of cases during the operation through the open wound with the skin flap thrown back and the entire wound covered with a wet sterile towel. Such treatment has the advantage of bringing the radiation in more direct contact with an-

actual area of incision, nor can it have any advantageous effect upon the metastatic cells. It has the disadvantage of prolonging the etherization and thus prolonging the operation. It re-



Fig. 4 (a, above) Case 8 Primary carcinoma of the left

tumor tissue

quires the joint action of the radiologist and the surgeon. After treating a number of cases in this way we concluded that the disadvantages of treatment in the open wound were greater than the advantages. We then began the post-operative treatment as soon as the patient could be comfortably moved to the X-ray laboratory.

The sub-

scribed varies from time to time but radiologists will appreciate that the development of our subject is an ever-growing one.

with the development of the scientific phase of our subject and vary our technique in order to produce the greatest effect upon the diseased tissue with least effect on the healthy tissue.

For the ante-operative treatment I usually use three portals of entry for the rays, divided as follows: a line corresponding to a horizontal line drawn through the anterior surface of the



Fig. 5 (a, also left and b at right) Case 9. Carcinoma of the left breast

the present time

erythema dose of deep radiation is given within a period of 2 weeks. If one adds to the direction of the rays to these areas the secondary effect

horizontal line forms the upper border of the mammary area to be treated. The posterior border of this mammary area is marked by the radi-axillary line. The rays are then directed

period of 40 minutes. Each of these three areas is covered within one week, that is we try to

This is all producing
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Each of these areas is treated again during the second week so that the second radiation over each area is given a week from the first and each of the three areas receives two of these treatments within a period of 2 weeks. In other words 233

During the past year after giving the ante operative treatment and the postoperative treatment as described I have been seeing the patient once a month for observation only and have not added any further treatment unless there was some sign of recurrence. Previously we have been in the habit of giving radiation over a period of 5 or 6 months, or during one or more years. Such procedures, however have many disadvantages. It discourages the patient, it is indefinite. It is expensive and very generally the patient just interrupts the treatment, of her

own accord after a time and we lose track of the patient. It will be many years before we can definitely prove which is the best procedure, but it is my impression that what I have described above is the best technique known today.

The treatment of recurrent and metastatic carcinoma by radiation. I have previously written an article upon this subject and will therefore only discuss this briefly under this subheading. I think there can be no question but that recurrences and metastases are best treated by radiation. While some brilliant results are produced by this means and some cases that seem absolutely hopeless do recover and remain well, at least for a period of from 2 to 20 years, the majority of these metastatic and recurrent cases will die of carcinoma. In all instances according to my observation there has been a retardation in the disease, and at least temporary improvement. From the same condition that had brought about a metastasis or a recurrence there is liable to commence a deep metastasis elsewhere in the body and though the metastasis that is brought under treatment at the beginning may disappear there is no assurance that such a metastasis may not develop elsewhere in the body. The most difficult problem for the surgeon, radiologist and all of those who have to do with the treatment of cancer of the breast is to determine the extent to which metastasis has taken place. It is this difficulty that has led to the many



Fig. 6 (a, above). Case March 1911. Scirrhus carcinoma of the left breast, ulcerated adherent palpable metastatic lymph nodes in axilla. Thorough saturation

place and ultimately developed. So too a recurrent carcinoma in the operative field may only be an index of other recurrences which will develop later in other parts of the body. For this reason one cannot confine the treatment merely to the recurrence, but the entire operative field and the glandular distribution leading therefrom at least, must be included in the treatment. In all cases of cancer of the breast that are referred to me at the very beginning I make a roentgenogram of the chest and, as previously described by me, in about 50 per cent of these cases I find evidence of mediastinal or pulmonary disease. My estimate of the frequency of this mediastinal and pulmonary involvement may be too high for at the beginning of this involvement it is extremely difficult to make any definite diagnosis. In the advanced stage it is very easy. In many instances I have been able to follow the progressive development of this disease within the thorax. For this reason one must always give

close attention to the mediastinum as well as the liability of the disease extending downward toward the liver. In general I try to get two or three erythema doses of rays into the recurrent tissue within a period of 2 weeks, and I try to get two or three erythema doses into the metastatic nodules within a period of about 2 weeks. In some instances, it is practical to follow this with the introduction of radium needles directly into the metastatic nodules, or in other instances, it is practical to make prolonged surface applications of radium filtered in such manner as to give only general radiation. Such methods of treatment sometimes produce very brilliant results. The following are a few illustrative cases of results that may sometimes be obtained in the treatment of recurrent and metastatic carcinoma of the breast.

RECURRENT CASES

CASE Mrs. E. F. B. age 77 referred by Dr. John B. Deaver November 4, 1909, on account of recurrent carcinoma, nodules along the line of incision and in the

teleangiectases of the skin. This is 3 years after the treat-

93. 8 years after treatment of recurrence.

CASE 3. Mrs. R. C. age 61 was referred by Dr. Ernest Laplace, October 29, 1903, for treatment of recurrent nodules in the mammary region enlarged metastatic

metastasis.

The treatment of primary carcinoma of the breast by radiation. As a whole we have had comparatively little experience with the treatment of primary carcinoma of the breast by radiation, because we have tried to urge operation in all cases, just as the surgeon has taught us to do. I am not prepared to recommend a change in this procedure even now though the results which we have obtained during the past two years with the combination of the treatment with the roentgen-rays and radium justify serious consideration of this subject. In most instances the cases of primary cancer of the breast that have been sent to us for treatment have been the totally inoperable and very advanced cases. Most of them have been inoperable because of the advanced disease. Others have been inoperable because of some complication. In nearly all of these cases the patient has received comfort, consolation and prolongation of life.

Some time in the future we will be able to

tumor tissue reduced and at times completely disappear. We have seen metastatic nodules disappear. We have seen the tumor tissue reduced to a fibrous mass which makes the inoperable case operable. There can be no doubt in the mind of any reasonable observer that the radiation has pronounced effect upon cancer tissue. We have also seen a supposedly inoperable patient get well and remain well for years. Even such results, however, cannot justify the conclusion that we can replace surgery. In some instances we can cause the complete disappearance of the tumor tissue and the probable metastatic lymph nodes. In others we bring about the disappearance of the metastatic lymph

of this malignant tissue

the tumor tissue shrinks to a fibrous mass, and

then he has been requesting the removal of the local tumor tissue. This form of ante-operative treatment differs from that which is previously described by me but there is much to recommend this latter procedure. In this latter instance one works not only for the direct action upon the cancer cells, but for the effect of the fibrous tissue which chokes off the cancerous cells into small nests. In all instances when there is any tumor tissue remaining after radiation the safest procedure is probably to recommend its complete removal.

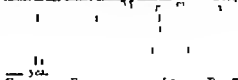
No definite technique can be described suitable to all cases. One must vary the technique according to the amount of the disease and its distribution. In all instances one can only speak of general technique, for no two machines give exactly the same output, and therefore technical details cannot be literally transferred and re-applied blindly on some other machine. One should learn the erythema dose time of a given amount of current, at a given spark gap for a definite distance of each particular machine. Then from this erythema dose value one can by calculation arrive at the proper dosage for the individual case.

In a primary case with or without metastases in the axilla, I should give preliminary roentgen radiation, very similar to that previously described as pre-operative treatment. Then at the end of two weeks, if the patient cannot be operated upon, radium needles can be imbedded into the diseased area. Ten milligram needles can be introduced at a distance of 1 centimeter apart covering the entire diseased area and the metastatic lymph nodes and left in place for 8 hours or they can be inserted $1\frac{1}{2}$ centimeters

PRIMARY CASES

I will describe a few illustrative cases briefly.

CASE 6 Mrs. A. J. B., age 44, referred for treatment August 26, 1918. Referred operation. She had noticed a tumor in her breast during 3 months. She was requested



was recommended wait to date.

This case is reported to show how electro-coagulation can at times be combined with radiation to destroy projecting tumor tissue.

CASE Mrs. F. W., age 59, was referred for treatment March 27, 1921, by Dr. J. S. Carter. She had had a tumor in her left breast 5 years. At this time, the nipple had sloughed away and there was an adherent ulcer $1\frac{1}{2}$ inches in diameter with induration of the tissue over 3 inches in diameter. She was given a preliminary

was recommended. One must not be fool

posterior portion of the ribs. She also had a palpable lymph node in the left supraclavical region. She had

The treatment of primary carcinoma of the breast by radiation. As a whole we have had comparatively little experience with the treatment of primary carcinoma of the breast by radiation because we have tried to urge operation in all

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metastatic lymph nodes and left in place for 8 hours or they can be inserted $1\frac{1}{4}$ centimeters apart and left in place for 16 hours. I believe it is unwise to allow the needles to stay in place longer than 16 hours. Even when they are left in place for this period of time they produce a violent

PRIMARY CASES

I will describe a few illustrative cases briefly

Case 1. A. M. 43 years old, referred for treatment

doses in each series, during a period of 6 months with complete disappearance of all tumor tissue. She has remained free from any evidence of disease about two and a half years.

Case 2. A. M. 43 years old, referred for treatment

Case 3. A. M. 43 years old, was referred by Dr. M. H. Henry October 6, 1920. Has had tumor removed

has remained well to date

This case is reported to show how electro-coagulation can at times be combined with radiation to destroy projecting tumor tissue.

Case 4. Mrs. F. W. age 59, was referred for treatment March 7, 1921 by Dr. J. S. Crister. She had had a tumor in her left breast 5 years. At this time, the nipple had sloughed away and there was an adherent ulcer $\frac{1}{4}$ inches in diameter with induration of the tissue over 3 inches in diameter. She was given preliminary

in apparent success. I realize the difficulty of such procedure and I believe it cannot be universally recommended. One must not be fool

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CONCLUSIONS

1. It has been shown that thorough radiation treatment of cancer tissue will devitalize the cancer cells so as to interfere with their inoculation or further development. This justifies our recommendation of anti-operative treatment.

2. It has been shown that radiation effects are most evident on new growing tumor and such radiation will prevent the growth of inoculated tumors. Therefore, we recommend active post operative treatment in cancer of the breast.

3. Visible and palpable recurrent metastatic cancer are probably only an index of slower

HAVERLY Cancer of the Breast and its Operative Treatment London, 1906

1906
Idem

23
Idem. Radium combined with X-ray treatment in carcinoma of the breast. Am J Roentgenol 1911, Nov.

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Idem 1911
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4. Thorough radiation treatment will cause the disappearance of tumor tissue in some cases and therefore, can be recommended when there is any reason for avoiding an operation.

5. In every case of cancer of the breast there should be an X ray examination of the chest and this should be repeated from time to time to detect any possible invasion of the mediastinum or lungs, sternum, or spine.

SURGICAL DIATHERMY AND RADIOTHERAPY IN CANCER OF THE UTERUS¹

By G. KOLISCHER, M.D., CHICAGO

THE modern treatment of uterine cancer may be divided into first, an extensive regional cleanup at the occasion of a hysterectomy as advocated by Ries; second, radiotherapy which has received a new stimulus by the recent innovations in X-ray technique. It has become the practice of other operators to use the Ries extensive cleanup in performing vaginal hysterectomy.

Without entering into a discussion of statistics I want to present to you a few considerations which bear upon the question of the

best results have been obtained by combining radiotherapy with other therapeutic agents. Pre-eminent among these agents may be men-

While I am not in a position to impress you

our cases only one source was necessary to bring about the results reported.

Surgical diathermy is the devitalization of tissues by the heat produced through the resistance that the tissues offer to high frequency currents sent through them. Permit me a little

ceptible to the destructive influence of heat than other cells. It was also claimed that cancer cells were killed remote from the area of cleavage. This assumption proved erroneous but it was found that this igni-extirpation involved great dangers. Extensive burning around the uterus as in other parts of the body is apt to produce general intoxication, among the results of which fatal duodenal and stomachic ulcers must be mentioned.

Electrocoagulation eliminates these dangers by virtue of the denecrosis of the tissues and the immediate sealing of the adjacent lymphatics. To use a simile, we find here the same differences as between moist and dry distillation. There are also technical advantages connected with the use of diathermy. Its penetration as to depth and width may be accurately gauged and the entire operation proceeds without any interruptions, so necessary in the use of the actual cautery.

In the beginning of our work, we, of course, tried to carry the destruction by diathermy as

reduced the extent of denecrosis.

Let me explain that by reporting a very instructive case in point.

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again used here in Illinois and great results have been claimed for it.

Upon the authority of Doyen the theory has been accepted that cancer cells are more sus-

Now as to the explanation of this success. The electrocoagulation alone could not have been responsible, because only a small part of the tumor was diathermized. It is not in harmony with our other experiences that the single application of the mesothorium alone could have produced this regression. The question arises: Which combination of conditions may be offered as the working cause?

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results

This dissatisfaction is partially due to the fact that the deductions made were based on allegations dating from the initial stages of this discipline, and partially due to the fact that as premises were proffered assertions supposed to be anno-

just as sound arguments may be marshalled up in favor of this contention as against it.

If it were true that the therapeutic result is based on the direct destructive action, it necessarily would follow that in each instance of a malignant tumor therapeutic rays would be bound to make an impression on the malignant tumor. Unfortunately this is not true in many

that the majority of these changes occur anyway in malignant tumors, whether they are radiated or not. They are the usual regressive changes observed after a certain length of time in every malignant growth.

All radiologists agree on one point: that the therapeutic results are enhanced if the tumor is

radium.

under the influence of the rays certain materials are produced which will produce defensive fer-

patient are antagonistic to the products of the

practically all

Now as to the influence of the diathermy. The effect of electrocoagulation on bodily structures has been very carefully studied by a number of observers and recently Dr. Corbo, by experiments on dogs, added to our information. We may distinguish three zones produced by diathermy: the first one, the zone of desiccation or

cells of high vitality. It is asserted that other

cancer cells still in their period of activity at emergence in the same way as the normal tissue. It is possible to believe that these activated cancer cells under the influence of the rays will produce defensive ferments.

If this be true then we have to change our method of attacking cancer of the uterus. It means that we will not dare to remove the entire cancer but only the decayed and decaying cancer cells. These latter have lost the poten-

tiality of producing ferments. The virile cancer cell is the object of the ray. That is, by directing the therapeutic rays toward these energized cancer cells, we may accomplish a real chemotherapy of the uterine cancer.

I have only five cases of the above character to report but by the results obtained I feel sufficiently encouraged to ask you to give this combined method a trial in inoperable cases of uterine cancer.

A SIMPLIFIED APPARATUS FOR THE TRANSFUSION OF BLOOD BY THE CITRATE METHOD

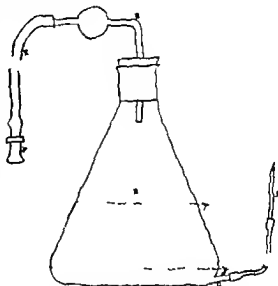
By WILLIAM H. BYFORD, M.D., Chicago
Assistant Surgeon, St. Luke's Hospital

THE technique of blood transfusion by the citrate method may be facilitated if care

the result is a decreased rapidity of the blood flow in the tube with consequent tendency to clot in the tube before the citrate solution is reached.

2. Both tube and needle should be as large as is consistent with the vein to be punctured. This again reduces the liability of clotting, decreases the time spent in operating and so brings the injected blood closer to body temperature.

3. The inside of the needle and tube should be free from any irregularities which will slow up the flow or be the resting place for a clot. Ablemann's ointment may be used for this purpose. The smoothing and lubricating properties of this ointment are probably of more



Level of 20 ounces of blood and citrate solution mixed. γ Level of 4 ounces of citrate solution.

and otherwise a clot may form at the tip of the tube and either block it up or fall into the solution below.

is citrate

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The needle is No. 13 gauge with the syringe end filed off. A piece of heavy rubber tubing is

When the needle is inserted into the vein, negative pressure at γ draws the blood directly into the citrate solution without its having been previously exposed to the air. The large needle delivers the blood at such velocity that agitation to mix the blood and citrate solution is scarcely necessary. After a sufficient quantity of blood has been withdrawn the needle is taken out and a few drops of citrate solution drawn through it to wash it free of untransfused blood. The same needle is then inserted into the recipient's vein, the

THE PRODUCTION OF TEMPORARY PARALYSES IN THE TREATMENT OF DIFFICULT CASES OF CONGENITAL DISLOCATION OF THE HIP JOINT

By GEORGE ROBERTSON F.R.C.S. (Edin.) DUFFELDORF, SCOTLAND

MOST of the patients affected with hip-joint dislocation are seen and treated at an early age. In the large majority of these, the usual bloodless reduction followed by prolonged fixation, suffices to effect a cure.

A certain number of cases, however, one meets in the older girl or boy, and there some difficulty may be encountered in securing the necessary amount of muscular relaxation to allow easy reduction of the head of the femur and the easy maintenance of the correct degree of flexion, abduction and external rotation at the hip-joint.

Those of us, who have performed the "bloodless" operation, will I think, admit that the difference in treatment in the case of the young child on the one hand and that of the older girl or boy on the other depends, to a very large extent, upon the state of the upper thigh muscles and chiefly upon that group innervated by the obturator nerve.

Many of the early accidents at operation and

Such excessive force is never necessary in treating cases under 5 years of age, but, from 5 to 7 years and over that age much difficulty may be encountered.

locomotion

To a surgeon familiar with the anatomy of the region, the exposure and temporary ligature of the obturator nerve trunk at the obturator foramen will offer no great difficulty. The incision may be made as for the treatment of a femoral hernia or for exposure of the internal circumflex

artery. The pectineus muscle having been

in a vertical direction corresponding to the outer margin of the pectineus muscle. Thus the anterior surface of the obturator externus muscle, with the posterior division of the obturator nerve piercing it, is seen. This branch, or, any other branch of the nerve carefully followed toward the obturator foramen, will guide the surgeon to the nerve trunk as it emerges from the obturator canal.

The muscles thus paralyzed are the gracilis adductor longus, the adductor brevis, occasionally the pectineus from the anterior division of the nerve and the obturator externus, the adductor magnus, and occasionally the adductor brevis from the posterior division. The fibers of the

ligature pressure on the obturator nerve trunk, but should be put out of action by division of the tendon at its insertion into the adductor tubercle

ligation and maintained for $1\frac{3}{4}$ to 2 hours will give a paralysis of 6 months duration. By medium pressure is meant just that amount of

and knee, it has been my practice to inject a few

dearwife,

Seeing that the wound will be sutured at the end of the little operation, a special method of applying the ligature to allow of its easy removal,

A CLINICAL METHOD OF DETERMINING ADHESIONS BETWEEN THE STOMACH AND THE GALL TRACT

BY B. B. VINCENT LYON, A. B. M. D. PHILADELPHIA

Associate in Medicine, Jefferson Medical School, Chief of Clinic, Gastro-Enterological Department, Jefferson Hospital, Attending Physician, Methodist Episcopal Hospital

For the pyloroduodenal segments and the under surface of the liver or other parts of the gall tract, can be practised by making use of the transmission of the tuning fork note determined by auscultation. This I speak of perhaps erroneously as *tuning fork auscultation*. It is a method that I learned quite by accident 9 years ago and have been routinely making use of in all cases studied during this period and now have hundreds of records of its use. Its reliability has been repeatedly checked chiefly by X-ray in a large number of instances, by operative exploration, and where possible, by postmortem inspection. So far as I am aware, it is a method that has not been heretofore described.

in the left epigastrium directly over the stomach, I had completed the mapping out of the left and lower borders of the stomach and then placed

just as sharply and clearly through the liver as when the stem of the tuning fork was placed directly over the stomach. The obvious interpretation was that if this clear note could be transmitted through a solid organ such as the liver with the bell of the stethoscope directly over a hollow viscus, the stomach, therefore some

Proceeding with the study of this case it was found to be one of cancer of the stomach with pyloric obstruction and at operation it was found that the terminal portion of the lesser curvature and the pylorus and part of the duodenum were

densely adherent to the under surface of the

scope placed over the stomach. Occasionally one hears it clearly transmitted from the left half of the right costal margin in normal cases, but

easily and constantly on every examining occasion it should not be interpreted as adhesions.

In pathological cases however I have learned to differentiate the following types, which, as I have stated, have been confirmed by X-ray

through the liver I would expect to meet at operation that the adhesions are more likely to involve the gall bladder

Third, when the musical note is transmitted

tinuousness of the transmitted note and its wider distribution over a larger area of the liver suggests that the adhesions are denser in character or more widespread. All of these tuning fork transmissions of the gastric note will be enhanced if 3 or 4 ounces of air is injected into the stomach.

The most likely error which enters into these deductions arises from this anatomical fact, that in patients in whom the transverse colon occupies a normal position the bell of the stethoscope when placed in the mid-left epigastrium, will also be in topographical anatomical relationship with

best to transfer the bell of the stethoscope from the left epigastrium to a point just above and slightly lateral to the right iliac fossa so that by surface topography it is placed over the cecum or ascending colon, at which point obviously the stomach can be ruled out. If then the tuning fork note is equally well transmitted from the costal margin or through the liver and is found constant on repeated examinations, we might expect to find the adhesions between the hepatic flexure of the colon and the liver or gall tract quite as well as to infer that the adhesions involve the pylorus or the duodenum. It will be found that the note is transferred to the right iliac fossa much less frequently than to the left epigastrium. I believe this is consistent with our general statistics that with inflammations of the gall tract adhesions are much more apt to form between the stomach and duodenum than between the gall tract and the colon.

It is necessary to emphasize conspicuously one word of caution in the technique of this test. When the stem of the tuning fork is placed upon the skin surface it should be placed firmly but

ducted superficially along the taut skin surface. It is very easy to prove that this is so by placing the bell of the stethoscope anywhere in the lower abdomen and placing the stem of the tuning fork over the liver in such a way as to stretch the skin between the two points in which case the tuning fork note will be transmitted from any point on the abdominal surface.

examinations, in order to develop a greater personal sense of security in its accuracy. It will be found a useful clinical procedure in the way of further suggesting adhesions of the upper right quadrant which involve the stomach duodenum, or the hepatic flexure of the colon. The likelihood of this simple clinical test being correct will be increased if the result of the X-ray examination suggests that the pyloric end of the stomach is pulled over to the right and upward, or there is found some distortion or flattening of the here
ered
the
physical examination, as we proceed to study the case by intubating the duodenum there frequently occurs some further confirmation of its reliability in that the gastroduodenal transit time of the duodenal tube is delayed above its average normal limit of 20 minutes.

EDITORIALS

SURGERY, GYNECOLOGY AND OBSTETRICS

FRANKLIN H. MARTY, M.D.
ALLEN B. KAMMEL, M.D.

Managing Editor
Associate Editor

AUGUST 1922

THE CONTROL OF CANCER

ONE of the great movements of modern medicine has been the dissemination of knowledge on matters of individual and public health. Editors of newspapers and other periodicals, recognizing the public demand for enlightenment on questions of health and disease, are effectively meeting this demand by directing attention to health departments conducted by well-informed physicians. In this manner valuable information has been made available to everyone and newspapers and popular magazines have become influential factors in the rapid progress in this country toward better health. When, besides this better health propaganda a campaign is directed against one controllable disease, its ravages should be materially diminished; this is borne out by the present status of tuberculosis in this country as compared with conditions 15 years ago. Fifteen years of war against tuberculosis by the National Tuberculosis Association have been chiefly responsible for the steady decrease in the number of deaths from tuberculosis in this country and judging by these results, this decrease in the death rate may be expected to continue until it has been brought to its minimum.

The success of the National Tuberculosis Association in the control of tuberculosis and in increasing the length of life has led to similar organized efforts in the control of other diseases. Cancer, of course, offers a field of wide possibilities because of the many established facts concerning it which are unknown to the public. For example, one of the most common misconceptions of cancer is that the knife spreads the disease. If the cures of cancer by early operation could be given the publicity that is given to failures to cure by late operation, this misconception would be quickly dispelled.

The desirability of more comprehensive and organized efforts to acquaint the public with the vital facts concerning cancer led to the formation of the American Society for the Control of Cancer. The Society under the presidency of Dr. Charles A. Powers, of Denver recently concentrated its activities in its first "Cancer Week." During this week every possible means was utilized to give nation-wide publicity to the facts concerning cancer. Short talks were given by physicians to more than two million people moving pictures telling the dramatic story of the curability of cancer in its early stages and the certain fatality of the disease in its late stages were exhibited in all sections of the country. The article, *Cancer a Message of Hope* by Dr. William W. Keen was read in a great many churches on the Sunday of Cancer Week; street cars in some of the large cities were placarded with facts concerning cancer; articles on cancer appeared in many newspapers; special meetings of medical societies

were called for symposia on cancer talks on cancer were given at public meetings held under the auspices of the American College of Surgeons cancer clinics were held and medical and surgical journals added their support to the campaign. Since the only immediate prospect of bringing about a decline in the death rate from cancer is through greater familiarity on the part of the public with the fact that in early diagnosis and treatment lies the one hope of cure, it is certain that such a campaign, particularly if followed up by continuous educational propaganda, as has been urged by the *Journal of the American Medical Association* will save many persons from death by cancer.

In connection with the education of the public, the medical profession should be reminded constantly that while the public must be taught that early diagnosis is essential to cure, it is just as essential that prompt and efficient treatment be instituted if permanent results are to be secured. Simmons and Channing, in a study of the records of patients in the Massachusetts General Hospital have shown that to an initial delay of five and four tenths months from the time the symptoms were first noticed to the time of the first consultation with a physician there was an added period of three months before correct advice was given. This incidence is not greater than that in other large clinics. In fact, similar studies, such as those of the Pennsylvania Commission have shown it to be considerably higher. Patients, therefore, are only partially responsible for the appalling number of cases of advanced cancer observed in clinics at the present time, and the responsibilities of the medical profession should not be overlooked in the consideration of the causes for this condition and their correction.

Through the continuation of vigorous educational propaganda, therefore, a decline

in the mortality rate from cancer will undoubtedly take place. The American Society for the Control of Cancer having as its chief aim the circulation of information concerning cancer deserves the encouragement and aid which comes from the interest and active support of the medical profession. Of equal importance would be the efforts of the profession to decrease the fatal period of delay between the time the patient seeks advice and the time proper treatment is advised and carried out. DONALD C. BALFOUR.

A CENTRAL BUREAU OF PATHOLOGICAL MATERIAL

THROUGH the proposed College Library and Department of Literary Research the American College of Surgeons contemplates meeting a long felt and obvious need. Akin to this however is an even greater need not limited to any branch of the profession but of interest to the scientific world. Its indications are relatively greater because no substitute is available, as is the case with respect to a library. It is universally of interest because its scope and results would definitely advance knowledge of diseases. Reference is made to a central bureau for the preservation of pathological material, especially histologic sections for record and study. The subject is here presented for the consideration of the fellows in the hope that there may be developed a sentiment that steps be taken to further the consummation of this project.

The idea was conceived during efforts to study the neoplasms and cysts of the spleen. It then became apparent to the writer that material was not available for this study efforts to obtain material from reported cases met with little success. Until tissue from a considerable number of cases can be assembled and studied, a satisfactory classification of

sarcoma of the spleen cannot be made. To make possible such comparative histological studies, a system for the interchange of laboratory specimens should be established both at home and abroad through a central bureau. Only in this way can facts be expeditiously collected in regard to such unusual lesions. There are numerous other lesions which demand further study and classification before the last word on them can be said. Sections from such cases should be filed, indexed and rendered available for study. Such a move would do much to further our knowledge of many types of malignant growths including bone sarcoma, to mention only one of the more immediate needs. Moreover a call for desired material might well be issued for an investigator through the central bureau. The College would appear an appropriate place for such a bureau; the Surgeon General's Museum as suggested by Eber also offers a suitable medium for carrying out the project.

The question of the follow-up system pertains to this same consideration. It is disappointing that the late results of such cases as have been reported once cannot be obtained. A satisfactory follow-up system will do much

to give the individual surgeon information about his own cases. But more than this is necessary: the late results of previously published cases should be recorded when such cases are of types about which relatively little is known and about which much information is desired. This deficiency could be corrected to a large extent by slight effort on the part of our leading surgical societies. The members should be encouraged to publish the outcome of previously reported cases in which interest pertains to the ultimate result. This particularly applies to malignant growths. Thus, an occasional successful case of resection of oesophagus for carcinoma has been reported. Such cases will be referred to for years should they pass without record of the late results? Numerous cases of Gaucher's spleen have been reported as cures, yet the late results are rarely available.

Only the general indications have been presented. It is hoped that details may be worked out and an effective organization developed so that a central bureau for unusual histological sections may be established and that recorders of unusual cases, especially "cures" of malignant growths be stimulated to report the ultimate results. EBER and H. POOL.



MASTER SURGEONS OF AMERICA

JAMES MARION SIMS

IT IS difficult for the present generation to realize how great an influence Marion Sims exerted upon the surgery of the world. His fame was not sectional. Born in the South, he came to his fullness in New York and crowned his career in Europe by the highest recognition ever given an American surgeon.

A short review of Sims' interesting all but romantic life will justify his universal reputation and prove his greatness.

His birthplace was Lancaster County, South Carolina, where he first saw the light on January 25, 1813. The record shows that after attending school and academy he received a degree from his State College in 1832; that he took a year's course at the Charleston Medical School and that he was graduated in medicine at Jefferson Medical College, of Philadelphia, in 1835. Thus equipped he returned to his native place for practice, but within a few months he became discontented and the autumn of the same year found him in Mt. Meigs, Alabama. Here he settled down to the life of an average country doctor. In his autobiography (*The Story of My Life*, 1884) he portrays feelingly the trials of the rural practitioner and emphasizes, with some show of impatience, the discouragements and failures attendant upon such desultory work. Certainly Sims was not a success as a general family physician. He was restless, ambitious, fired with zeal for doing and finding things, and not satisfied with the humdrum of routine practice. While there are many able men who perform the most useful service in such affairs, Sims was not cut in that mold. He was yet to find his work.

When, following a short engagement in an expedition against the Creek Indians, he moved into Montgomery, Alabama, at the end of the year 1840, he struck his stride. His indomitable energy seized the opportunity to obtain a large surgical practice, and he was soon forced to build a private hospital in a corner of his lot for the accommodation of patients, whose care eventually made him famous. It was in 1849 that he announced his first cured cases of vesicovaginal fistula. The events leading up to this present many features of dramatic interest. From the time of Sims' arrival in Montgomery he performed all sorts of operations in general surgery, such as those times permitted—amputations, hernia and cleft palate repair, certain eye operations, tenotomies for club foot, and removals of the jaw. The most difficult cases were brought to him. Among the most

interesting ones were the vesicovaginal fistulae, frequent at that time as the result of poor obstetrics, and considered practically incurable. Two apparently insignificant occurrences brought about the first successful result in the repair of these fistulae after many failures. One was the observation that in the knee-chest position air will rush in and balloon the vagina as soon as the vulvar orifice is opened especially when a bent pewter spoon (the first Sims speculum) was used to retract the perineum the other was the accidental sight of a spiral brass wire discovered while walking along the street and suggesting the use of a fine silver wire to close the denuded edges of the fistula. The bent spoon exposed the opening and the silver wire sutures held tight without sloughing—thus were removed two previously insuperable difficulties in the way of relieving these suffering women.

This operation now is so easily performed and the results so uniformly fortunate that we can hardly conceive of the conditions under which Sims worked. Month after month for 4 years he labored to gain access to the site of operation, finally using his speculum in the latero-prone position (since named after him) time after time witnessing the breaking down of the wounds closed with silk sutures persisting until he was rewarded with success in the case of a colored woman after thirteen successive operations.

Small wonder that under the terrific strain of work, accompanied by anxiety and worry the body never very strong broke down. He was compelled to give

The usual opposition met by a newcomer was his lot but after a few years his triumph was complete resulting as his chief vindication in the founding of the Woman's Hospital of which Sims was the creator and which now stands as the highest type of this class of institution a lasting memorial to him. His noble figure in bronze stands in Bryant Park.

Eight years in New York sufficed to spur Marion Sims onward seeking other worlds to conquer. In 1861 just as the Civil War in this country was beginning, Sims sailed for Paris and asked the eminent surgeons of that city (then the surgical center of the world) for patients that he might demonstrate his method of cure in vesicovaginal fistula. The first of the surgeons he sought was Velpeau then at the height of his fame and a pleasing account of the interview is given by E. Souchon, of New Orleans, who was then a medical student in the French capital. Doubt haughtiness, and cold demeanor marked the Parisian surgeon's manner toward the American claimant, but, with Souchon playing the part of interpreter after several days a patient was found and operated on by Sims in the presence of masters like Velpeau, Nélaton, Ricord and Malgaigne and of medical students in large numbers. The result was a perfect cure. Then case after case, both hospital

and private patients came in abundance and with the exception of two who were near dying under chloroform, nothing happened to mar the continued round of successful operations most of which were done without any anæsthetic, and all of which resulted in cures. His fame and fortune were made.

From Paris he crossed to London and then back to Germany and Austria and all the European capitals. Later he settled in Paris with his family and lived there for the most part. A few months of each year he spent in New York. On one of these visits home in 1883 he passed away quietly and painlessly in his bed.

Though Marion Sims deservedly has been called the "father of gynecology" for he was the first to devise proper instruments and to invent means of operating successfully in the genital tract of woman, yet he was more than that. He was a competent surgeon in other branches of the art and many principles established by him have done much to bring surgical science to its present position. He was not the first to suture intestinal wounds but the rules he laid down in 1881 two years before his death, placed the management of gunshot injuries of the abdomen on the firm basis which it occupies today. Briefly his rules were that the external wound should be enlarged to ascertain the extent of injuries inflicted that the wounded intestine should be sutured and bleeding vessels ligated that diligent search should be made for extravasated matter fecal or bloody before closing the cavity that the surgeon must judge whether to drain or not. While Bobbs of Indianapolis preceded Sims by a few months in the removal of gall stones thus gaining priority Sims performed the operation independently and is undoubtedly responsible for its adoption as a definite procedure.

No surgeon has achieved so wide distinction and so universal acclaim as Marion Sims. His name and fame were known throughout the civilized world. He was heralded in all the countries of Europe and received decorations from the governments of France Portugal Spain, Belgium and Italy. Through him American surgery was carried to the four corners of the earth, his first and great discovery bringing joy to thousands of wretched women everywhere.

The life and work of Sims should give heart to the young surgeon. By patience sheer industry and a tenacious purpose he rose from an obscure existence in a remote country district to be the most renowned figure in the surgical profession loved and honored at home and abroad. To take infinite pains to develop the capacity for hard work to keep everlastingly at it to do one thing well not merely to win success, but to deserve it—these are attributes of genius. And James Marion Sims was the surgical genius of his age.

HUBERT A. ROYSTER.

TRANSACTIONS OF SOCIETIES

CHICAGO GYNECOLOGICAL SOCIETY

REGULAR MEETING HELD JANUARY 20, 1922 W. C. DUNFORTH, PRESIDENT

MELANOSARCOMA OF OVARY

DR. BERTHA VAN HOOBLY: I have here a specimen of a melanosisarcoma of the ovary. The patient was a woman of 40, who had had one child 2 years ago. The tumor occupied the entire abdomen.

DR. JOSEPH L. BAER: In the course of his paper Dr. Scott comments on blood counts taken in extra

last year. On removing the tumor 32 ounces of fluid were removed and as much more was sopped up with sponges.

The tumor consisted of four globular masses two of which were made up of dermoid masses

leucocytosis in pregnancy?

DR. R. A. SCOTT (closing the discussion): In answer to Dr. Baer's question I might say that while an interne at the Evanston Hospital we ran through 50 cases on which we made counts on

I never had such a case before and asked Dr.

LEUCOCYTOSIS FOLLOWING GYNECOLOGICAL OPERATIONS

DR. R. A. SCOTT read a paper on leucocytosis, following gynecological operations (See p 181)

DISCUSSION

DR. THOMPSON: Dr. Scott opens an interesting

reported a degenerated uterus the same as a bag of 20,000. I may be wrong in thinking that the leucocytosis was the result of infection arising from the cervical stump after amputation of the fundus.

SURGICAL DIATHERMY AND RADIOTHERAPY IN CARCINOMA OF THE UTERUS

DR. GUSTAV KOLLSCHER read a paper on surgical diathermy and radiotherapy in carcinoma of the uterus (See p 217)

DISCUSSION

Dr JAMES F. PERRY (Galesburg, Ill.) I am exceedingly interested in this discussion that Dr

the keloid to disappear. The scar was very long and the entire thing disappeared.

and I believe the control can be maintained.

we do not aim to remove cancer. I have never urged the removal of cancer. I have always ad. oated heat and with the cautery rather than diathermy which failed in my hands. I am gratified to come here tonight and to know that you are talking about heat even though it is produced by the diathermic current. It has simply needed someone to correlate the experiences of the different men and in that way give all of us the benefit of what has been done before.

Dr B. C. CORNELL In looking up the literature during our experimental work on dogs we have

therapy or diathermy alone. It appears to me that the results of radiation therapy in uterine

and should add in the bladder we observe that instead of getting permanent results a recurrence and ultimate death follow. The sexual apparatus of the female is entirely destroyed by radiation and

experience is limited to that method. I think, as

still in its infancy. As soon as means are found which will enable us to determine the intensity of radiations, I am sure results will be much better than they have been in the past.

Dr EMIL RINA I am not a radiologist. I have constantly been surgically active in the treatment carcinoma of the uterus and I wish the gentlemen who were so strong on radiology tonight would have come forward with a few results like those we have who do surgery. If you have inoperable carcinomata, irreparable carcinomata, carcinomata with extensive metastases nobody wants to do surgery and if these patients can be treated in a

and you will surely pick up any journal on urology in which you did not find a description of some new method of removal of bladder tumors by excision.

One thing we do which I think is a mistake and that is to use indiscriminately the method of excising cancer tissue for diagnosis. Everyone realizes that metastases is the one fatal thing in cancer and I think every other method should be used in the attempt to make the diagnosis without taking out a piece of tissue. If tissue is taken it should be removed with the cautery.

Dr GEORGE L. DAVENPORT I wish to add another case: those Dr Koltsche has reported, an extensive carcinoma of the cervix of a type everyone has seen. The ulceration was so great that epinephrine had to be done to get at the cervix, it was hung up so high. The woman never had had any children. Diathermy was applied. In using diathermy the method of application and the method of control it seems to me should be very accurate in contradistinction to the actual cautery or hot iron. This case was treated

Koltscher gave a series of statistics some years ago of cases treated with X-ray and they were all dead except one. He stated that we did not know or understand the treatment sufficiently that we did not know the proper dosage and so on. How much better are we off today? If we can cure these cases today we are all delighted. It is no fun to operate—it is hard work. Nobody wishes to kill his patient. No one is more anxious to save them than I. If I can be shown that cancer patients can be cured by radiation, I shall be most glad to stop

all that. It is a poor practice to try to get all of

It is often reiterated that cancer is greatly

DR. MARK T. GOLDSTEIN In regard to removing a piece of tissue for examination and diagnosis personally I have never seen any harm come from removing a piece of the cervix for diagnosis. I think no one should operate for removal of a cancer of the cervix or of the uterus unless they have previously made macroscopic examination. Cases reported without such examination do not mean anything for the treatment used. You should know you have a carcinoma of the cervix before you start to operate. If you want to get an early carcinoma

come the positive and permanent cure

DR. V. SYDNEY HEAVY I do not wish to discuss the paper but when I hear about the

harm in the case of a negative biopsy of the

examination

DR. RUDOLPH W. HOLMES I have always felt that my interest in medical work has centered

detrimental

DR. E. J. DONARVO I have been very much interested in this discussion, but personally feel decidedly pessimistic. All cases of carcinoma observed by me in a practice of over 40 years—many operated on very early some late some not at all—all died within 5 years, with the exception of one patient who lived 9 years. All methods of

treatment of cancer today is based upon one fundamental fact as I see it, and that is that the unfortunate patient is robbed of the assurance of

single case of carcinoma operated on or treated by any method known, early or late that did not succumb. This is simply my own experience.

one will recall with what enthusiasm the early days described the marvellous cures and pictured the

Raes, but I would like to put down some basic facts. Some years ago some professional statisticians went to work to analyze the medical statistics and they proved to their satisfaction and

Dr. Rice clinical statistics. He reported a woman upon whom he operated 21 years ago in which case he proved carcinoma of uterus and glands by macroscopical examination. I cannot make myself believe that if one has to remove such a large number of glands that it is technically possible to remove all of the carcinomatous tissue. It is more probable that some such tissue is left behind. What becomes of that? There was no relapse. Consequently, there must be some other curative agent that killed those cells.

Dr. Rice wants to see cases. Very good, but it is not always easy to bring those cases. Some time

instable. You will find some cases unoperated upon that remain well, after raying for a long time.

In favor of raying. Don't they like to cure their patients? I do not know.

Cancer is only a local disease that is a statement that is hard to sustain. We know that men who work in aniline factories and their neighborhood

disease. It is due to a combination of factors, some local and some general.

Without going into all the arguments that can be brought forth I would like to say this. We all know of cases of malignant tumors that have disappeared without an operation. Consequently some materials must have been developed in the body which destroyed them. So why should not materials be artificially produced that make life so miserable for the cancer cells that they lie down and die instead of the patient doing so?

operation is performed in cancer there are supposed

CHICAGO SURGICAL SOCIETY

REGULAR MEETING HELD MARCH 3 1933 DR. DYAN D. LEWIS, PRESIDING

TUBERCULOSIS OF THE TONGUE

DR. FREDERIC A. BASSETT. I desire to report a case of tuberculosis of the tongue and the reason for reporting is obvious. Cases of tuberculosis of the tongue are relatively rare. In this case the tuberculosis occurred on the tip of the tongue in a man 55 years of age. Four years before he came under my observation he had the influenza. Following the influenza he had protracted cough, night sweats and the characteristic symptoms of a tuberculosis. Six months before he came under observation he noticed on the tip of the tongue a pimple as he described it. This rapidly grew larger, became painful, so that he could no longer eat with comfort. He complained of salivation and inability to eat. He lost 40 pounds in weight during the 6 months before he came under observation. He had a severe

sympathetic cord evokes an electrical action current after a latent period varying between 5 and 7 seconds—an effect which persists after the superior and the recurrent laryngeal nerves are severed.

autonomic system, and since their effects are not indirect through alterations of blood supply they are indeed true secretory nerves.

tion.

Inasmuch as a diagnosis was made of carcinoma of the tongue, I have wondered whether we are not apt to overlook tuberculous lesions in the tongue.

DR. JACOB FRANK read a paper entitled "Thrombosis of the Mesenteric Artery."

SOME NEW OBSERVATIONS REGARDING CONTROL OF THE THYROID GLAND

DR. W. B. CANNON, Boston, Massachusetts, discussed some new observations regarding control of the thyroid gland in abstract of which follows:

Histologists have described non-medullated nerve fibers reaching to the cells of the thyroid gland. Anatomists find that fibers going to the thyroid

standard doses.

Lery proved that stimulation of the cervical
— humeral artery promptly

The method used by Lery involved stimulation

be
sat
sed
ra

tion of the cervical sympathetic, nervous impulses with every respiration. Thus nerve filaments

mately 150 beats per minute to 225 and even 250 beats per minute. The character of the animal

the animals the increase of rate was 185 per cent. Removal of the thyroid gland on the operated side restored an animal in which the metabolism had been greatly increased to a rate which was within the normal range of variation.

It is not to be supposed that the foregoing experiments tell the whole story regarding the disease exophthalmic goiter. It seems clear however that the nervous element is an important one and since

previously been removed

removed on the stimulated side

In order to make clear the effects of reflex stimulation, it is necessary first to call attention to the fact that stimulation of an afferent nerve will cause a sharp rise and fall of the rate. If the denervated heart. This does not occur if the adrenal glands have previously been removed and the nerves of the liver have been severed. Stimulation of the hepatic nerves will cause a brief acceleration of the heart especially in animals that have been fed meat. The temporary rise and fall is therefore due to adrenal and hepatic secretion.

Reflex stimulation of the sciatic or brachial nerve such as would cause sympathetic impulses to be discharged had the same effect on thyroid secretion as direct stimulation of the cervical trunk, but with the addition that there was primary acceleration of the heart due to adrenal and hepatic discharge. This was followed by the same slowly developing thyroid effect. Asphyxia likewise had the same influence. On the other hand if the thyroid glands had been previously removed sensory stimulation and asphyxia induced only the increased rate due

by great emotional excitement

DISCUSSION

Dr. JOSEPH L. MILLER. I would like to ask Dr. Cannon if he knows what this substance is in the liver that causes an increase in the pulse rate and why an animal fed on meat behaves in the manner he has described, while the fasting animal does not do so.

I would like to know also when the thyroid is stimulated in these animals and he notices an

animal

I think his views fit in very well, indeed, with what we see clinically in mild cases of hyperthyroidism, that group of cases which is very extensive and frequently not recognized in which the patient has symptoms of hyperthyroidism that are only intermittent, only when excited, or when angered. These people I have observed when quiet show a normal pulse rate but the minute they are excited they get a marked increase in the pulse rate and definite tremor. When the basal metabolism is taken on this type of case when quiet it may be normal but this does not by any means exclude a

fibers have grown out to the distribution of the sympathetic fibers we have been able in a certain percentage of cases to produce many of the phenomena of hyperthyroidism. When this operation is done there would be discharged to the distri-

marked hyperthyroidism when the patient is excited, and in this group of cases if we are going to get information from basal metabolism it must be taken when the patient shows symptoms, and not in a state of rest when the patient is free from symptoms. We have had several cases of this type where the basal metabolism rate when at rest was normal, and yet under the X-ray they showed such marked improvement we felt quite convinced our clinical diagnosis was the correct one, and I am a firm believer that the diagnosis of hyperthyroidism is a clinical one but that the degree of intoxication is a laboratory one.

Dr DEAN D. LEWIS With reference to the histological changes in these thyroid cases I would like to ask Dr Cannon how he accounts for the infrequency with which exophthalmos develops in the secondary goiters and the toxic non-hyperplastic goiters.

in 1914. He found in liver cells very minute micellar masses which stained with Millon's reagent and which represented therefore protein material. Starvation caused these masses to disappear. If

1920 who observed farther that adrenalin given

cases of thyroid stimulation. Of course, this raises

thyroid stimulation was associated with an increase of the rate of metabolism amounting to 18 per cent as the heart rate fell the metabolic rate likewise fell.

they were capable of retaining the pressure in the thyroid glands in our animals was not like that seen in human cases of exophthalmic goiter.

ervative Treatment of Fractures of Long Bones

CORRESPONDENCE

AMERICAN MEDICAL AID FOR RUSSIA

as physicians. The almost total destitution of the physicians in Russia, the entire lack throughout the country in hospitals, relief camps, cities and vil-

Every precaution has been taken by this organization to prevent such funds, as are provided, from being misapplied. It is not possible to prevent the use of public hospitals in Russia through the commission of health of Moscow with the approval and personal knowledge of a representative of the American Friends Service Committee.

Will you not print this appeal in SURGERY

medicine is made effective in surgery in medicinal therapeutics, and in the control of contagion. A sincere effort is being made by physicians here and in other cities and states in conjunction with the American Medical Aid for Russia Committee, 103 Park Ave., New York City, to meet the urgent plea of the doctors of Russia for the simple tools of their trade, for the ordinary office supplies of soap, anesthetics, antiseptics and drugs to heal and relieve

medicine?

Faithfully yours,

HARVEY EMMERSON, Chairman
New York State Campaign Committee
American Medical Aid for Russia

BOOKS RECEIVED

CANCER OF THE BREAST AND ITS TREATMENT. W.

ANNALS OF ROENTGENOLOGY. A SERIES OF MONOGRAPHIC ATLASSES. Edited by JAMES T. CARE, M.D. vol. 11—THE PATHOLOGICAL GALL BLADDER. ROENTGENOGRAPHICALLY CONSIDERED. By ARAL W. GEORGE, M.D. and RALPH D. LEONARD, M.D. New York: Paul B. Hoeber, 19

ENCYCLOPEDIA FRANÇAISE D'UROLOGIE. Published

thod, New York: William Wood & Co. 1913. 311 p.
LES TUMEURS APPENDICÉES. By TH. DE MARTAL and Ed. ANTOINE, Editors. Paris: Librairie de l'Académie de Médecine, 1913.

STUDIES ZUR ANATOMIE UND KLINIK DER PROSTATA-HYPERTROPHIE. Julius Tandler and Ott. Zacherhandl, Editors. Berlin: Julius Springer, 1913.

BLOOD TRANSFUSION. By Geoffrey Keyes, M.A. M.D. (Camb.) F.R.C.S. (Eng.). London and New York: Oxford University Press, 1913.

THE TREATMENT OF LESIONS OF THE PERIPHERAL SPINAL NERVES. By Sir Harold J. Stiles, M.B.E. F.R.C.S. (Edin.) and M. F. Fothergill Brown, M.S. M.D. (Lond.). London and New York: Oxford University Press, 1913.

AMERICAN COLLEGE OF SURGEONS

SUMMARY OF GROUP MEETINGS OF STATE AND PROVINCIAL SECTIONS OF THE CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS 1920 TO 1922

OUR DISTINGUISHED SPEAKERS

T. C. M. — — — —

College was created.

At the Clinical Congress of the College, held in New York in October of 1919, the Board of

SUMMARY

During the first year of this experiment our program consisted of clinics on the mornings of two days, two scientific sessions, and a meeting to the public. In January 1921 this program was revised and a hospital conference was substituted for one of the scientific sessions.

It was the original purpose to hold an annual meeting in each state and province. However after a year of uniformly successful individual state and provincial clinical meetings, changes in their organization were considered advisable.

mittees of the burden of arranging a meeting each year and to give the Fellows of the College an opportunity to see the clinical work of their confreres in neighboring states and provinces.

This sectional grouping has not in any way impaired the individuality of the existing executive committees and committees on credentials. It is simply a union of states and provinces for better and larger meetings.

their time and services, among them

Willard Parlett, St. Louis
Frederic A. Bailey, Chicago
Vibrey P. Blair, St. Louis
Joseph C. Bloodgood, Baltimore
Hugh Cabot, Ann Arbor
John G. Clark, Philadelphia
George W. Crile, Cleveland
William R. Cobbin, Chicago
Thomas S. Coffey, Baltimore
Carl B. Davis, Chicago
John B. Deaver, Philadelphia
Robert L. Dickinson, New York
J. M. T. Finney, Baltimore
William D. Haggard, Nashville
Carl A. Hamann, Cleveland
Jabez N. Jackson, Kansas City
Allen B. Kanavel, Chicago
Dean Lewis, Chicago
William E. Lister, Cleveland
Fred Bates Lund, Boston
Arthur T. Mann, Minneapolis
Charles H. Mayo, Rochester
C. Jeff Miller, New Orleans
Harry C. Mook, Chicago
Joseph A. Pettit, Portland
John Osborn Polak, Brooklyn
Harry M. Richter, Chicago
Major G. Seelig, St. Louis
Richard R. Smith, Grand Rapids
Howard Canning Taylor, New York
Ernest F. Tucker, Portland

VALUE OF SECTIONAL MEETINGS

We have received many encouraging expressions of opinion regarding the benefits which have accrued to the public, to the hospitals, to the medical profession in general, and to the Fellows

of the College in particular. Among these are the following:

DR. CHARLES H. MAYO, Rochester, Minnesota. "The spirit of educational advancement in surgery founded upon integrity, ability and training of the surgeon, has been carried to the members of the College of Surgeons throughout our country, thus reaching many members who are unable to attend the yearly Convocations of the College and the Clinical Congress. As a Fellow and Regent of the College who has always attended the Convocations and participated in some of the sectional meetings, I feel that the College has paved the way for a great future in the surgery of our country in standardizing not only the surgeon, but the place in which he works—the hospital. This achievement is not the only benefit for the people, as is shown by their attendance at the public educational meetings concerning cancer and preventive medicine which are always held with those of the College."

DR. JOSEPH C. BLOOMBERG, Baltimore. "These sectional meetings are essential first, for publi-

"2 The benefits to the hospitals are found in the unifying of standards and a closer appreciation thereof wherein lies their value to the community. The better acquaintance of the lay members of their boards as well as members of their professional staffs with the standards required for their widest efficiency cannot fail to react in a progressive development."

"3 The benefits to the lay public are found in the increasing appreciation of the standards which are being demanded for their benefit by the medical profession and an increased knowledge of the benefits of scientific medicine and of the responsibility resting upon them, themselves to support and raise the standards of their hospitals."

DR. JOHN B. DEWEY, Philadelphia. "The sectional meetings of the American College of Surgeons, inaugurated two years ago as an experiment, have so proven their value in every respect for which they were intended that there should be no question of considering them anything but an established custom, an integral part of the

tant, because by the publicity of our proposed reforms we get the community behind the movement, and make it possible for the local profession to put it over."

DR. GEORGE W. CARR, Cleveland. "The organization of the sectional meetings of the American College of Surgeons is one of the most

practical result of the policy of the College to raise the standards of surgery throughout the United States. The beginning has been well

It would seem that the benefits from these sectional meetings will be manifested in three distinct directions — (1) to the medical profes-

various operators in the clinic and of better sur-

the field of medicine and surgery and at the same time have offered the opportunity to men located remote from the larger centers of meeting personally those active and prominent in the latter. The stimulating effect of such social intercourse can scarcely be overestimated."

Finally the privilege of membership in the College is highly prized, and the pride in Fellowship cannot but be reflected in the efforts of its members to make the influence of the American College of Surgeons felt as an important factor in the advance of surgery throughout the world."

DR. JOHN OSBORN POLAK, Brooklyn, New York. "I have been very much impressed with the reception that has been accorded to the Fellows of the College who have taken part in these sectional meetings."

exchange of ideas, and a closer appreciation for each of the viewpoint of the other

"In the first place the hospital meetings have brought to the attention of the staff the trustees, the administration, and the community what is expected in the modern hospital what can be accomplished by proper organization and the minimum standard. They have further demon-

REVEREND C. B. MOULDER, S. J. President, Catholic Hospital Association, Milwaukee: "The audiences reached at these meetings consist of members of the medical profession, hospital and nursing professions, and the public in general. The number of each is large and practically covers the whole continent, and I believe we reach the most active and leading people concerned in better medicine and better hospital

nity health

and the profession

been held
affected by
not interest

the propaganda makes for a proper understanding of the aims and traditions of the medical pro-

of the College.

The program presented by the College is true and fundamental because no hospital can be conducted today in view of the advanced

in the elevation of the standards set by the hospitals in which the clinics were held. And this cannot but redound to the advancement of the surgical profession.

"The whole medical profession in the cities

are mere money changers in the service of the sick. Not only is it true that the hospital must conduct its work according to the plans of the

must conform to what is scientifically true, ethically right, and sociologically required by the developing sense of the patient's or public's right to fair play.

There is nothing recorded in the history of medicine so much to the honor of the medical profession as the present move for enlightened

support.

increased their skill and the hospitals, the public, and the College.

preventive medicine and of organized curative and alleviative care of the sick in all institutions established for that noble purpose."

DR. MALCOLM T. MACEachern, Director General, Victorian Order of Nurses for Canada, Ottawa, Canada: "The College of Surgeons accomplished a real advance in its splendid pro-

the public meeting in the evening and group and individual consultations throughout the two-day period.

"The members of the College are able to keep closely in touch with the parent organization, which is a great advantage to the many who cannot attend the annual conferences regularly. And finally the sectional meetings foster greater stimulation and enthusiasm amongst the individ-

been carried on.

"These meetings are unique, dealing as they do with phases of preventive and curative medicine through a well arranged two-day program presented so as to interest all groups in the community—the public generally as well as the medical profession and the hospital people. All this has meant much for the advancement of scientific, preventive and curative medicine as

information on health and how to keep well through simple, comprehensive addresses on such subjects as cancer, child welfare, social diseases and other matters pertaining to public health. The public also has an opportunity of understand-

THE MEETINGS FOR THE PUBLIC

state, the mayor of the city, a judge, a senator or representative or some other prominent citizen, and after the meeting many of these individuals have directed letters to the offices of the College expressing their appreciation for what the College has done in their respective communities.

Among the subjects which have been presented at the public meetings by leaders of the profession are the following:

The American College of Surgeons and its relation to the public, better hospitals, the laymen's interest in hospitals, means through which the public can aid the medical profession, how the public can assist in reducing the mortality of cancer, experimental medicine and its value to the public, why the church is interested in the medical education of the laity, the control of cancer, the advantage to the community of scientific research, the economic value to the community of prenatal work, the benefits to be derived by the public through co-operation with

reasons of the College. Such an opportunity is of value particularly to the members of the local

hospital groups in the solution of their problem generally and particularly in the standardization movement but also in the publicity given to such work with the resulting stimulus and enthusiasm created thereby. During the two days the hospitals have the advantage of the assistance rendered by the experts present, most of which is accomplished through the afternoon hospital meeting with the round-table conference,

community, experimental medicine and its relation to public health, cancer as a community problem, surgical researches in peace and war, what the public should know about disease, preventive medicine, what the surgeon is doing to limit the necessity for operation, the work of the American Society for the Control of Cancer and its relation to the community, the public's debt to medicine, what scientific medicine is doing for the prospective mother, the

importance of the early recognition by the general public of gonorrhea.

In addition to the above, the prominent surgeons who have attended the sectional meetings have made innumerable talks before Rotary Clubs, Chambers of Commerce, Women's Clubs, Teachers' Association, etc. at the request of officials of these organizations.

SECTIONAL MEETINGS HELD

A chronological summary of state and provincial meetings which have already been held follows:

| | 1920 | States and provinces represented |
|------------------|----------------|-----------------------------------|
| September 2, 4 | Battle | Montana |
| September 6, 7 | Boise | Idaho |
| September 10, 11 | Portland | Oregon |
| September 13-15 | Seattle | Washington |
| October 7-9 | Pittsburgh | Pennsylvania |
| November 12, 16 | Phoenix | Arizona, New Mexico |
| November 18, 19 | San Francisco | California, Nevada |
| November 21, 22 | Salt Lake City | Utah |
| November 25, 27 | Denver | Colorado, Wyoming |
| December 2, 3 | Buffalo | New York |
| December 10-12 | Peoria | Illinois |
| 1921 | | |
| January 7, 8 | Dallas | Texas |
| January 10, 11 | New Orleans | Louisiana, Mississippi |
| January 14, 15 | Atlanta | Georgia, Alabama, Florida |
| January 17, 18 | Charleston | South Carolina |
| January 20, 21 | Charlotte | North Carolina |
| February 12, 19 | Little Rock | Arkansas |
| February 21, 22 | Oklahoma City | Oklahoma |
| February 25, 26 | Des Moines | Iowa |
| March 1 | Omaha | Nebraska |
| March 3, 4 | Wichita | Kansas |
| March 7, 8 | St. Louis | Missouri |
| March 10, 11 | Kearney | Nebraska |
| March 14, 15 | Lawrence | Kentucky |
| March 22, 26 | Cleveland | Ohio |
| April 1, 2 | Newark | New Jersey |
| April 11, 12 | Richmond | Virginia |
| April 14, 15 | Winston | West Virginia |
| April 18, 19 | Detroit | Michigan |
| April 26, 29 | Indianapolis | Indiana |
| May 1, 3 | Baltimore | Maryland, District of Columbia |
| May 10 | Washington | District of Columbia |
| May 1 | Springfield | Massachusetts, New England States |

| | 1921—Cont'd | States and provinces represented |
|-----------------|---------------|---|
| June 24, 25 | San Francisco | North Dakota |
| June 27, 28 | Albuquerque | South Dakota |
| August 10-19 | Calgary | Alberta, Saskatchewan |
| August 22, 23 | Vancouver | British Columbia |
| August 25, 26 | Spokane | Washington |
| August 29, 30 | Portland | Oregon |
| 1922 | | |
| January 9 | St. Paul | Minnesota, Montana, North Dakota, Wisconsin |
| February 6, 7 | Liberal | Nebraska, Iowa, South Dakota |
| February 9, 10 | Kansas City | Missouri, Kansas |
| February 17, 18 | Los Angeles | California, Arizona, Nevada |
| February 23, 24 | Honolulu | Territory of Hawaii |
| February 27, 28 | Memphis | Tennessee, Arkansas, Kentucky |
| March 2, 3 | Birmingham | Alabama, Florida, Georgia, Louisiana, Mississippi |
| March 10, 11 | Asheville | North Carolina, South Carolina |
| April 2, 4 | Winston | Pennsylvania, New Jersey, Delaware |
| May 5, 16 | Portland | New England States |
| May 9, 20 | Halifax | Maritime Provinces |

Our sectional meetings could not have been successful if we had not had the co-operation of the local medical profession, lay organizations, and public officials, and if the local committees had not been untiring in their efforts in behalf of the College. Likewise the willingness of the leaders of our profession to address these meetings, even when they were held in sections of the country far removed from their homes, has been responsible in a large measure for our splendid results.

Expressions of appreciation which have been

permanent feature of the American College of Surgeons

THE DEPARTMENT OF LITERARY RESEARCH DEFINED SPECIAL SERVICE OFFERED PHYSICIANS AND SURGEONS BY THIS DEPARTMENT OF THE AMERICAN COLLEGE OF SURGEONS

papers reporting of unique cases, and special research work.

requests have come from professional men outside of the College

The experience of the Department in meeting these requests has gradually evolved a standard procedure. It is the purpose of this article to present a brief outline to show more clearly the nature of the service furnished and to help those interested to know just how best fully to utilize the work of the Department.

Finding out what the surgeon wants: A small reproduction of the blank which is sent out to the surgeon before any piece of work is undertaken is shown on this page.

Time of application for service: One of the most important points on this blank is the date line.

The natural tendency is for the requests to

Research at request of
Address

Subject

Type of work

(State whether bibliography alone or bibliography and abstracts are desired)

Phases of subject to be covered by research
(Check those desired)

History

Etiology

Pathology

Symptomatology

Diagnosis

Differential Diagnosis

Treatment

Prognosis

Other points to be brought out by research

Number of years to be covered by research

Date at which material is to be completed

(If it is not possible to complete the work on the date set, you will be notified. As much time as possible should be allowed for this work.)

Stipulations as to cost

Articles from the following journals need not be abstracted because these abstracts are available to me

Journal

Volume No

Year

Date

Signed

(Note: As all literary research prepared by the American College of Surgeons are being indexed out, the material becomes part of the reference list of the College Library where it will be accessible upon request in the future.)

small staff since the highly specialized nature of the work requires a careful selection of workers and a thorough training in the field. Requests at any one time will not be accepted in such a wholesale manner that the work cannot be carried on

from *Index Medicus*, *INTERNATIONAL ABSTRACT OF SURGERY*, *Quarterly Cumulative Index*, *Index of the Surgeon General's Library* and from all available sources. They are prepared in standard form and typed on cards of a standard size so that they can be filed in alphabetical arrangement and additions made at any future time.

your

Follow up: If the material is received by the surgeon in advance of the time he needs to make

If a limited or selected bibliography is desired by the physician the Department undertakes the unbiased selection of leading articles that appear to be particularly in point.

Abstracts. With a blank filled out showing just what phases of the subject the physician wishes to have covered, abstracts are made with his interests in mind. Such abstracts are more useful and save more of the surgeon's time than abstracts made for general publication. It is the aim of the workers to present the opinions and arguments of the writers in an unbiased manner. The abstracts are typewritten on good quality paper arranged alphabetically and, when time permits, they are indexed or classified in some way for ready reference.

Translations. Special care is exercised in the abstracting of articles in foreign languages, and whenever desired the Department is glad to furnish full translations of important foreign articles in the interest of greater accuracy and to present a clearer picture of the material in the original source.

Cost of research service. Under the present ar-

range of service the bibliography is not made as complete as possible. The leading articles are abstracted first and the bulk of the literature is then grouped with a view to covering all phases of the subject, outlining new tendencies, and presenting new experiments in the field, with unimportant literature properly subordinated.

A limited service. A more limited service may meet the physician's needs. In this case, in addition to limiting the phases of the subject

SOURCE

CLINICAL CONGRESS OF AMERICAN COLLEGE OF SURGEONS

TWELFTH ANNUAL SESSION BOSTON OCTOBER 23-27 1923

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PLANS FOR THE CLINICAL CONGRESS IN BOSTON

MONDAY October 22nd is the first day of the Congress in Boston. The day will be devoted to a discussion of the problems related to the Hospital.

others interested in the development and maintenance of hospitals.

The first formal session of the Congress—the Presidential meeting—will be held on Monday evening in Symphony Hall. This will be the occasion of the inauguration of the President Elect, Dr. Harvey Cushing, who will deliver the annual address. Another feature of that evening will be the John B. Murphy Oration in surgery by Professor Raffaele Bastianelli of Rome, Italy.

The plans for the Boston meeting will in a general way conform to those of previous sessions of the Congress with clinical demonstrations at the hospitals and medical schools during the morning and afternoon of each of the four days of the Congress—Tuesday to Friday inclusive—with scientific sessions each evening. A program of clinics and demonstrations is being developed by the Committee on Arrangements

that will accurately and completely represent the clinical activities of that great medical center. In this clinical program all departments of surgery will be represented including gynecology, obstetrics, orthopedics, urology, surgery of the eye, ear, nose, throat and mouth, experimental surgery, surgical pathology, roentgenology, etc.

Institutions which will co-operate in providing the clinical program are as follows: Harvard Medical School, Boston University Medical School, Tufts College Medical School, Beth Israel Hospital, Evangeline Booth Hospital, Boston City Hospital, Boston City Hospital.

Homeo-
 pathic Hos-
 pital, U. S. Naval
 Hospital.

Bc

The Executive Committee of the Congress is preparing an interesting program of papers and discussions dealing with live surgical subjects for sessions to be held in Jordan Hall on Tuesday and Thursday evenings. Papers will be read by eminent American and European surgeons who have been specially invited to contribute because of their wide experience in dealing with the conditions under discussion.

On Friday evening in Symphony Hall, at the tenth convocation of the American College of Surgeons, fellowship in the College will be conferred upon a group of American and Canadian surgeons, and honorary fellowships upon the distinguished foreign guests. The fellowship address will be given by Professor Raffaele Bastianelli.

General headquarters for the Congress will be at the Copley Plaza Hotel where the large ball-rooms, foyers adjacent thereto and other large rooms on the main floor have been reserved for the use of the Congress, and will be utilized for the registration and ticket bureau, bulletin rooms, etc.

HOTEL ACCOMMODATIONS

To facilitate obtaining hotel accommodations by Fellows who will attend the Boston meeting, the Committee on Arrangements has appointed a Committee on Hotels with Dr. Stephen Rush

more as Chairman. Fellows are requested to make application for reservations direct to the hotels named in the list recommended by the Committee as printed below. Where difficulty is experienced in securing proper accommodations, the matter should be taken up with Dr. Rush.

LIMITED ATTENDANCE—ADVANCE REGISTRATION

Because of the popularity of these annual clinical meetings it has been found necessary in recent years to adopt the plan of limiting attendance, which plan requires registration in advance on the part of all who expect to attend. The limit of attendance is based upon the result of a survey of the amphitheatres, lecture rooms, and laboratories of the several hospitals and medical schools as to their capacity for accommodating visitors. When such limit of attendance has been reached through advance registration at the office of the College, no further applications can be accepted, hence the necessity for early registration. Based upon our experience in recent years, it is probable that the limit of attendance will be reached some weeks in advance of the meeting.

BOSTON HOTELS WITH RATES

Adams House, 553 W. Kingston St.
 Americana House, 36 Haverer St.
 Arlington, 18 Chandler St.
 Avery 24 Avery St.
 B. H. B. B. B.

| Single Room | | Double Room | |
|-------------|-----------|-------------|-----------|
| With Bath | Without | With Bath | Without |
| | | 6 00-7 00 | 3 50-4 50 |
| | | 6 00 | 4 00 |
| 90-3 00 | | 4 00-5 00 | |
| | | 6 00 | |
| | | 8 00-10 00 | 4 00-6 00 |
| 3 00-4 00 | 50-3 00 | 5 00-7 00 | |
| 4 00 | 3 00 | 6 00-7 00 | 5 00 |
| 3 00 | 3 50 | 6 00 | 5 00 |
| | | 5 00 | |
| 6 00 | | 6 00 | |
| 4 00 | | 6 00 | |
| 5 00 | 3 00-5 50 | 7 00-8 00 | |
| | 3 00 | 8 00-10 00 | 4 50 |
| 3 00 | 00 | 5 00 | 3 00 |
| 3 00 | 00 | 4 00 | 3 00 |
| 3 00 | 3 50 | 8 00 | 5 00 |
| 5 50-7 00 | 4 00-4 50 | 5 50-7 00 | 5 00 |
| | | 7 00 | 3 00 |
| 3 00 | | 4 50-6 00 | |
| 5 00 | 5 50 | 6 00 | |
| | | 6 00-7 00 | 3 00-4 00 |
| 3 50 | 2 00-3 00 | 5 00 | 3 50-4 00 |
| | 00-4 50 | 7 00 | |
| | | 7 00 | 5 00 |
| | | 7 00 | 6 00 |
| | | 7 00 | 4 00 |
| | | 3 50 | |
| 8 00 | | 24 00-26 00 | |
| 4 00 | 3 00 | 6 00 | 5 00 |
| 4 00 | 3 50 | 7 00 | 3 50 |
| | | 7 00-8 00 | 4 50-5 00 |

AUGUST 1973

International Abstract of Surgery

Supplementary to
Surgery, Gynecology and Obstetrics

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Nose and Throat

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INTERNATIONAL ABSTRACT OF SURGERY

AUGUST 1922

COLLECTIVE REVIEW

URETERAL CALCULUS

By W. FRANK FOWLER, M.D. and JULIUS L. WATERMAN, M.D. ROCHESTER, NEW YORK

MANY points concerning stone in the ureter remain unsettled. The diagnosis, in particular presents difficulties. Therefore a summary of our present knowledge seems justified.

We are reminded by Keyes and Braasch (1) that speculation regarding the formation of urinary calculi has flourished since Hippocrates, yet the cause of the phenomenon remains unknown. Keyes and Braasch, in an admirable survey of the theories of etiology conclude from a study of the literature that geographic distribution, race, heredity, age, diet, sex, and trauma have little bearing, but Ochsner (2) presents striking clinical evidence that the drinking of distilled water may prevent recurrences.

Keyes and Braasch believe that the clinical evidence of the cause of stone points to a local mechanism at work in the pelvis of the kidney.

The frequent occurrence of demonstrable foci of infection in patients with calculi and the almost universal finding of infected kidneys associated with stone lend tremendous weight to the idea of a specific stone-forming infection. There is little direct evidence that anatomical factors or stone in the bladder are

causes

possibly at the site of a stricture. Lerpinsse (3) observes that ureteral stones are rarely formed in the ureter but Hünner believes that they often arise primarily in a ureteral stricture.

Geraghty and Hinman state that the points at which stones are most apt to lodge are the three narrowings along the course of the normal ureter, but

after with the bladder but that the factors in influencing the migration of a calculus along the ureter are numerous. For example

calculus may be caught in a diverticulum. Finally the variation in the contractility of ureters and their varying reactions to the trauma of calculi influence the passage of the stones.

Keyes adds that a stone may be arrested by a stricture. The shape of the stone rather than its size determines its liability to retention. Bogbee has observed that calculi may become lodged at almost any point along the ureter

the ureter only three at the ureterovesical junction

tion and thirty-two in the intramural portion. Jenaian (10) in 204 observations, found the stone in the pelvic ureter in 51 per cent. Bugbee found eighty-six of a series of 107 ureteral calculi lodged in the lower 12 centimeters, and sixty-five of these in the last 6 centimeters. Braasch and Moore observed that quite strangely impacted calculi were not lodged exactly at the

examination.

Bugbee observes that of sixty-five patients with a stone lodged in the last 6 centimeters of the ureter fifty-six complained of urinary symptoms, and Braasch and Moore state that vesical irritability was present in 218 of 294 cases of ureteral calculus. Although these and other symptoms

patients at least temporarily were encountered bilateral ureteral calculi in only five of 400 cases.

The subjective manifestations of ureteral cal-

parting from two to eleven attacks and thirty-five gave a history of having passed calculi. Braasch and Moore state that pain caused by stone in the ureter is due to two factors: (1) intrarenal tension resulting from urinary obstruction and (2) localized changes due to infection. Mechanical irritation caused by the stone itself seldom produces pain.

stone may be silent or may simulate various urinary lesions or lesions remote from the urinary

ureteral calculus is found

Ochsner however considers a carefully taken history as the most important element in the diagnosis since diagnoses based upon such histories are most frequently confirmed by the roentgenological and other laboratory findings. Jones (16) remarks that in a good history one can always find data that suggest an investigation of the urinary tract.

A diagnostic complication of importance is the absence of ureteral stone which sometimes

small stones. There was no definite

pain associated with ureteral calculus is spread

stone it has become a rule at the Mayo Clinic

vealed by the roentgenogram or by the wax bulb or will give rise to secondary changes such as dilatation discoverable by pyelography and ureterography, deficiency of renal function or infection. Judki, also stresses the fact that the combination of X-ray investigation and the use of the wax tip has considerably reduced the possibility of error.

Regarding palpation of the stone Braasch and Moore state that this is rarely possible

absence of abdominal pain, there is a history of pus or blood or the presence of microscopic pus or blood in the catheterized specimen. Genigney and Hinman state that it is impossible to determine the position or even the presence of a

through the vagina and rectum in 39 per cent of his cases. Braasch and Moore were able to

is to be definitely felt through the vagina it must

rectum in males in four cases. In one of the writers' cases the calculus felt stony hard in sharp contrast to the surrounding tissues and was detected very easily. Of bilateral ureteral stones palpated through the vaginal vault by Barringer (18) one felt hard but the other seemed less dense. Parker (19) felt an enormous calculus through the rectum in a man and recognized it as a foreign body. Braasch and Moore note however that, in the male inflammatory indurations or swellings about the prostate or seminal vesicles may prove confusing in rectal palpation. It appears, therefore, that the stony hardness of calculi is not always manifest to the examining finger.

Urinalysis, according to Braasch and Moore, is not of great value in the diagnosis of ureteral calculus since a few red blood cells or pus cells

tract. Geraghty and Human, on the other hand, note that red blood corpuscles are rarely absent in the presence of a stone. Blood in the urine, either evident or microscopic, does not of course prove the presence of stone, but its complete absence strongly indicates the absence of a calculus. In this, Harpster (20) and Fowler (21) concur. Braasch and Moore state that gross hematuria was reported in forty-one of 204 cases of ureteral stone.

(22.4 per cent). Judit states that it revealed the calculus in 60 per cent of 400 cases, and Cabot reports only eight negative X-ray examinations in 12 cases, a failure of 6 per cent. Cabot believes however that the a negative failure is about 15 per cent. Bugbee received positive X-ray reports in fifty-six of seventy-eight cases, and Young states that the percentage of failure in examination made by skilled roentgenologists varies from 6 to less than 1 per cent. In a review

of the literature Merritt found that the X-ray findings were positive in about 75 per cent of the cases.

Regarding the causes of error in the X-ray diagnosis of ureteral stone Braasch and Moore state that more failures are due to incorrect

more than 60 per cent of the cases. The causes of failure are

as the rays are cast in all directions the shadow of the bones

3. The small size of the stone. A calculus may be so small that its shadow will be misinterpreted or overlooked in the roentgenogram. In this connection it may be said that observers agree that the size of the stone bears no relationship to the severity of the symptoms.

4. Absence of calcium in the stone. Stones of this variety which are rare, throw no shadow. Geraghty and Human state however that in one case with a stone in the upper lumbar portion of the ureter and in another with a stone in the pelvic portion of the ureter

and oxalate

Graves (23) reports an instructive case in which the ureteral catheter met an obstruction 3 centimeters from the bladder and the ureterogram with the catheter in situ revealed an oval area of decreased density within the shadow of the filled ureter at the tip of the catheter and a well-marked ureteral dilatation above this area. The patient passed a stone a few days after leaving the hospital. In another case in which Graves observed a similar phenomenon in the renal pelvis a stone composed of pure cystine was removed from the kidney pelvis by operation. Graves states that following the injection of an opaque

pyelograms and pathologic lymph nodes. According to Livendrath, an alternation of darker and lighter areas in the shadow is quite characteristic of calcified lymph nodes. Gall-stones also are of varying density as their shadows usually have a dark periphery and a lighter center

The shadows of ureteral calculi are uniform. Brausch and Moore state, however, that such data cannot always be relied upon. Adams (24) observes that the shadows of ureteral calculi are usually elongated or bean-shaped and have one pointed extremity while those of phleboliths are spherical. Doubt may usually be dispelled

disease that in the absence of urinary findings surgical exploration of the gall-bladder would have been justifiable without a preliminary

with the catheter *in situ* is obtained by moving the tube slightly and retaking while the patient and the plate remain stationary.

Young notes that stereoscopic plates possess value, but Brausch and Kretschmer remind us that such plates occasionally mislead, in which event the ureterogram is more informative.

When the roentgenogram fails to reveal the stone Elsendorath follows the suggestion of Kneemmel, injecting merely enough solution through the catheter to coat the calculus and intensify its shadow. Elsendorath mentions also

cases the chief complaints were nausea, epigastric distress, and indigestion.

Observers agree regarding the frequency with which sufferers from ureteral calculus undergo unnecessary operations based upon erroneous diagnoses. Elsendorath, therefore, stresses the importance of a study of the urinary tract in every thorough examination of the abdomen, especially when there is a history of colic, fixed or radiating pain, or macroscopic or microscopic hematuria. Young concludes that in all cases with indefinite

stance in which ureterograms, by incidental accentuation of the shadow disclosed a hitherto unrevealed ureteral stone. Elsendorath states that

Moore)

Geraghty and Hinman employ the wax tip if there is question regarding the extra or intra-ureteral location of a shadow or if the X-ray fails to reveal a suspected stone. They believe that the use of the wax tip is the most accurate method of detecting ureteral calculi, provided the wax is protected from scratches before it

suggestive in only 60 per cent of the cases

ureterogram

Regarding the differential diagnosis, Brausch and Moore state that the radiation of pain to the upper abdominal quadrant in a number of instances was so characteristic of gall-bladder

seen, character by symptoms, etc., as usual

to both affections. Increased temperature and rapid pulse may also be present in both. Apparently even the diagnosis of acute appendicitis may occasionally fall under suspicion. The writers contend that a diagnosis of chronic appendicitis is never tenable unless a roentgenogram of the right ureter is negative. If at operation the appendix then appears normal the lower ureter should be palpated through the incision.

(c) — — — — — A mass within the ureter

is
in
th
in

identical with so-called renal colic. Such an increase of pressure may occur (1) when particles of tumor mass, blood clots, or pus detritus escape into the ureter (2) in cases of renal or

pole of the kidney

Concerning the relative size of calculi as regards their location, Braasch and Moore state that the larger stones usually lodge in the upper ureter. Those observed by Braasch (15) in the lower ureter average about 1 centimeter in length and 5 centimeter in width. Of particular interest, therefore, are the unusual reports in the literature of giant calculi in the lower ureter. Parker for example removed by suprapubic cystotomy a ure-

in length Braasch and Moore palpated a stone

centimeters in circumference at its largest part, and weighing 24 grams. Abell has gathered from the literature reports concerning other large calculi. Pool (34) reported an unusual case of multiple calculi and pyonephrosis: twelve stones lay in a pouch of the pelvic ureter like eggs in a nest.

Concerning ureteral stricture, Caulk and

are rare. From the clinical standpoint Judd observes that, even when the stone has ulcerated through the ureteral wall and lies in an abscess cavity there is little or no evidence of organic stricture.

Regarding the fate of ureteral stones, Braasch and Moore stated in 1915 that most calculi probably pass spontaneously and more recently Braasch (36) stated that 75 per cent are apt to pass unaided. According to Bugbee, 50 per cent of ureteral stones will pass. Bevan (37) believes that unless urgent symptoms arise, calculi the size of a coffee berry or smaller should be left alone as many of them will pass normally. Statistics gathered by Geraghty and Hinman show that a large percentage of small stones in any portion of the ureter will be spontaneously expelled, and Ochsner observes that the primary stone will usually pass if it becomes started.

Concerning cystoscopic measures designed to assist the passage of ureteral stones, Ehrlich (38) reminds us that Lewis suggested these methods in 1904 but urologists for some time failed to appreciate their value. The methods enumerated by Braasch and Moore are: (1) catheter manipulation, (2) the injection of sterile glycerin or oil, (3) fulguration, (4) ureteral dilatation, (5) cutting of the meatus, and (6) the use of ureteral forceps. Lepsinase has devised an ingenious dilating stone or cork with a central perforation for the passage of the urine. Judd (39) states that the cystoscopic technique is so successful that in the majority of cases of stone in the lower third of the ureter it must be considered the treatment of choice. Merritt observes that fully 90 per cent of ureteral stones may be removed by conservative methods, and Bugbee believes that 75 per cent will be passed following intra-ureteral manipulation. Young states, however, that a relatively large percentage of the ureteral calculi he observes are apparently too large to pass spontaneously or in response to non-operative measures.

With regard to the effect upon the kidney of retained ureteral stones the problem of obstruction must be considered. According to Bugbee sudden, complete occlusion of the ureter may cause immediate cessation of renal function or hydrophrosis from continued function without exit for the urine. Partial incomplete, or recurring ureteral obstruction causes slow dilatation of the ureter, the renal pelvis, and the calyces, back-pressure upon the urinary tubules, congestion of the kidney parenchyma with varying degrees of decreased function and always, unless relieved infection and finally kidney destruction.

The shadows of ureteral calculi are uniform. Braasch and Moore state, however that such data cannot always be relied upon. Adams (24) observes that the shadows of ureteral calculi are usually elongated or bean-shaped and have one pointed extremity while those of phleboliths are spherical. Doubt may usually be dispelled

disease that in the absence of urinary findings surgical exploration of the gall-bladder would have been justifiable without a preliminary roentgenographic examination, and in some cases the referred pain of stone in the lower ureter

with the catheter *in situ* is obtained by moving the tube slightly and retaking while the patient and the plate remain stationary.

Young notes that stereoscopic plates possess value, but Braasch and Kretschmer remind us that such plates occasionally mislead, in which event the ureterogram is more informative.

When the roentgenogram fails to reveal the stone Eisendrath follows the suggestion of Eusterman, injecting merely enough solution through the catheter to coat the calculus and intensify its shadow. Eisendrath mentions also the value of ureterography and pyelography in

cases the chief complaints were nausea, epigastric distress, and indigestion.

Observers agree regarding the frequency with which sufferers from ureteral calculus undergo unnecessary operations based upon erroneous diagnoses. Eisendrath, therefore, stresses the importance of a study of the urinary tract in every thorough examination of the abdomen, especially when there is a history of colic, fixed or radiating pain, or microscopic or microscopic hematuria. Young concludes that in all cases with indefinite symptoms, such as recurrent or chronic pain in the abdomen or back, even those presenting a definite orthopedic abnormality, a careful, re-

when a suspected shadow is obscured by reason of its position over the shadow of the sacrum, a careful examination should be made of the dry plate and another roentgenogram should be taken from an angle which will free the suspected shadow from that of the bone (Braasch and Moore).

Geraghty and Hinman employ the wax tip if there is question regarding the extra- or intra-ureteral location of a shadow or if the X-ray fails to reveal a suspected stone. They believe that the use of the wax tip is the most accurate method of detecting ureteral calculi, provided the wax is protected from scratches before it

ureterogram

Regarding the differential diagnosis, Braasch and Moore state that the radiation of pain to the upper abdominal quadrant in a number of instances was so characteristic of gall-bladder

ureteral calculus and appendicitis are well exemplified by the observation of Kaelblethner (26) that in both conditions the pain may be localized

to both affections. Increased temperature and rapid pulse may also be present in both. Apparently, even the diagnosis of acute appendicitis may occasionally fall under suspicion. The

are rare. From the clinical standpoint Judd observes that, even when the stone has ulcerated through the ureteral wall and lies in an abscess cavity there is little or no evidence of organic stricture.

Regarding the fate of ureteral stones, Braasch and Moore stated in 1915 that most calculi

tract which simulate it, Essendrach reminds us that any lesion which causes a sudden increase in intrarenal tension will induce symptoms identical with so-called renal colic. Such an increase of pressure may occur (1) when particles of tumor mass, blood clots, or pus detritus escape into the ureter, (2) in cases of renal or ureteral infection, (3) in nephritis (4) in ureteral stricture and (5) in kinking of the ureter such as that due to a movable kidney or compression of the ureter by an accessory artery to the lower pole of the kidney.

Concerning the relative size of calculi as regards their location, Braasch and Moore state that the larger stones usually lodge in the upper ureter. Those observed by Braasch (18) in the lower ureter average about 1 centimeter in length and 5 millimeter in width. Of particular interest,

that unless urgent symptoms arise, calculi the size of a coffee berry or smaller should be left alone as many of them will pass normally. Statistics gathered by Gerngthy and Hinman show that a large percentage of small stones in any portion of the ureter will be spontaneously expelled and Ochsner observes that the primary stone will usually pass if it becomes started.

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club-shaped stone $2\frac{3}{4}$ inches in length and $1\frac{3}{4}$ inches at its widest end, and the other 4 inches in length. Braasch and Moore palpated a stone through the abdominal

Fischer (35) demonstrated experimentally by tying off the ureters in dogs, that the lumen of the ureter invariably became re-established in from six to eight weeks after ligation with catgut. They conclude therefore that ureteral strictures

Barney (40) states that sudden complete occlusion of one ureter either experimental or clinical may produce no symptom and that uninterrupted recovery will follow in 25 per cent of the cases. Pain and tenderness in the kidney subsiding spontaneously is to be expected in 26 per cent. Infection of the kidney due to or aggravated by occlusion requires subsequent nephrectomy in 15 per cent of the cases. One ureter may be completely blocked for ten days without destroying the integrity of the kidney. Of 15 cases in which the subsequent condition of the kidney was investigated moderate hydronephrosis was found in 80 per cent. The effect upon the kidney of complete ureteral obstruction was well demonstrated by Caulk and Fischer in their bilateral

intense congestion of the unobstructed normal kidney resulting from inability of the efferent vessels to carry off the blood and the consequent stoppage of the urinary excretion. Tolerance for anuria of the obstructive type is surprising. Hauptster cites the case of a man who lived with this condition for twelve days. Demon (45) reports a case operated upon the eleventh day. Chevalier (46) a case operated upon the fourteenth day. Puget (47) a case operated upon the twentieth day and Russell (48) a case operated upon the twenty-eighth day. In each instance the patient recovered. Nevertheless, Frank warns us that relief should be afforded promptly, preferably by pyelotomy on the obstructed

months, five cases, twelve to eighteen months, three cases, and eighteen to twenty-four months, six cases. Hayes does not cite these figures as a guide to treatment. Merritt and Lequesne agree that for the preservation of the kidney all ureteral stones should be promptly removed, preferably by conservative methods.

The emergency created in ureteral obstruction of the sole remaining kidney is obvious. Facts to be borne in mind in the treatment of cases of bilateral stone are given by Hayes as follows:

1. The kidney with the better function should be operated on first.
2. The kidney showing acute symptoms is usually the sounder organ.
3. Impaction of a stone in the ureter of the sounder kidney may temporarily reduce its function below that of its fellow. Under such conditions it is safer to operate first upon the side with the ureteral stone.
4. Simultaneous bilateral operation may be

operation and bilateral ureteral stones removed

Judd advises nephrectomy leaving the stone in situ. Twice, however, he has been compelled to remove the stone from the ureter later because of pain. Braunsch (49) states that following nephrectomy a large irregular ureteral stone

age of the anuria. In cases of anuria the operation should be bilateral.

should always be removed at a second operation. In the series of 400 cases of ureteral stone reported by Judd fifty-one nephrectomies were done. According to Keyes, large stones impacted in the ureter invariably call for nephrectomy as the kidney is destroyed. Judd states that in the absence of acute renal infection conservative methods are in order. We are thus confronted with the problem of whether or not to remove a functionless, hydronephrotic organ. The observation of Caull and Fischer that kidneys die and atrophy following accidental ligation of the ureter without apparent impairment of health is suggestive.

Concerning the contra-indications to operation Brunsch states that unless the symptoms are

when there is bilateral pyelonephritis stones should be removed even though the symptoms are mild. Operation during the later months of pregnancy is inadvisable unless necessitated by acute symptoms.

In discussing the incision Judd advocates the Mayo kidney incision for stones located at the uretero-pelvic junction or anywhere in the upper third of the ureter, a straight rectus incision with extraperitoneal approach for a stone or stones in the lower two-thirds on one side and a mid-line incision with extra-peritoneal approach for bilateral calculi. The writers favor the Gibson incision to approach the lower ureter. This begins a finger-breadth above the symphysis in the median line, passes outward parallel to Poupert's ligament and follows the pelvic curve upward to a point slightly medial to and 1 1/2 inches above, the anterior superior spine. The fascia of the external oblique is incised along the same line and the flap dissected inward. An

incision through the trans-
versalis fascia and the conjoint tendon. The

lengthened McBurney incision with an extra-
peritoneal approach for calculi in the parietal
portion of the pelvic ureter. Battle (51) de-

other hand the peritoneum is freed from the abdominal wall until the ureter is exposed. The stone may then be removed extraperitoneally. Transperitoneal ureterolithotomy is nearly or quite obsolete. Lowalely (52) has devised a perineal route to the lowest part of the ureter in the male, and Bevan has used a similar approach. Bryant (53) in 1908 described the vaginal removal of ureteral calculi. Keyes (54) stated in 1910 that a large stone near the bladder may be removed through the vagina but if it is at all movable it is fixed in position with great difficulty and may slip up the ureter out of reach. Recently however there has been scant mention of the method. Ochsenr observes that he has used it but once. In enumerating the methods of reaching ureteral stones in the pelvic ureter Watson states that most of the paramedial, rectal, perineal, and vaginal routes have been abandoned because of the danger of infection and the difficulties of technique.

Regarding the points of practical value in the technique of ureterolithotomy Lewis suggests that preliminary catheterization may facilitate the finding and identification of the ureter and stone and Judd reminds us that the ureter usually may be found adjacent to the posterior surface of the peritoneum. Judd also emphasizes the inaccessibility of stones deep in the pelvis. Fortunately calculi lodged near the bladder are usually of fair size since the small ones as a rule pass spontaneously or may be made to pass by non-operative measures. The writers surmise that if remote stones are large enough to be readily palpated, they can generally be freed and worked upward to a more accessible position by the fingers extraperitoneally through any of the sufficiently ample suprapubic incisions.

Bevan notes the tendency of ureteral stones to slip out of the fingers and become lost. In this event it may be necessary to make a second incision over the kidney in order to reach the wandering calculus in the upper ureter or the kidney pelvis. Bevan suggests the use of blunt hooks about the ureter, one above and one below the stone to fix it for removal. The writers have used gray sutures. In this connection Hunter (55) reports a remarkable case in which the cigar-shaped shadow of a calculus deep in the pelvis was twice shown by the X-ray at intervals but in each instance exploration of the lower ureter was negative. Later the stone was removed from the kidney pelvis. Apparently when the patient was up and about, the calculus gravitated to the lower ureter but after she had been confined to bed for a short time it returned to the kidney pel-

viz. Braasch and Moore state that when there is an interval between the examination and the operation a second X-ray examination should be made just prior to the operation to determine whether the stone has been passed or has altered its position.

Lewis warns us that complete stripping of the ureter is inadvisable because it interferes with the blood supply. Abell was impressed in one

1 The etiology of ureteral calculus is still unknown

pedient has proved negative.

4. Many small stones pass spontaneously

5. Many more may be made to pass by intra ureteral manipulation

6. As the diagnosis is often late, open operation should not be delayed unduly (fifty-one nephrec-

Judd however prefer to suture the ureter. Drainage with rubber rather than gauze should always be employed. Braasch observes that usually there will be no leakage from the bladder by way of the remaining ureter following nephrectomy. In two instances, however, such leakage necessitated ureterectomy.

Regarding the mortality of operations for the removal of ureteral calculi Keyes observes that ureterotomy is almost devoid of danger and Judd reports only two deaths following operation in 400 cases even though nephrectomy was performed in fifty-one instances.

Concerning the cure of cases of ureteral calculi Cabot states that of twenty-one patients operated upon, fifteen (71 per cent) were well and six (28 per cent) were not well. The criteria of cure were a normal urine and a negative X-ray

to the lower ureter

8. The operative mortality of ureterolithotomy is low

9. A symptomatic cure is obtained in a large percentage of cases

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of inquiry the latter being carried up urinalysis when indicated. The data regarded as evidence of recurrence were positive X-ray

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ABSTRACTS OF CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE

Eloesser L.: Some Notes on Plastic Operations
Surg Gynec & Obs 102 2331 1956

There are free and pedicled grafts—also combinations of free and pedicled grafts, such as the Italian plastic graft which becomes a free graft after its pedicle is severed.

Sutures should be placed in sound skin. A small

make a greater and fan-shaped anastomotic zone in the flap. A mattress suture through the pedicle wall caused a large dough. Tension sutures joined

well withstand infection and injuries due to pressure and bruising.

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through the scar may be stimulated by applying and releasing a band every few hours. When the circulation is poor the flap may be severed gradually. A bridge flap is better tolerated than a simple pedicle flap. Too much substanceous tissue makes a flap heavy.

medications are selected

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Chaff C II. The Application of Fascia Lata in Plastic Surgery. *Ann. M. J.* 9: 2, 4, 509

The author reports seven cases in which *Lasca* lata grafts were used. The transplant was kept under slight tension.

CASE 2: A focal fistula in the left iliac region. A fascia lata graft measuring 4 by 4 in. was used to repair the defect in the abdominal/iliac muscles. The patient was doing well five months later.

CASE 2: A gunshot wound of the left forearm
= places and ability to extend the

930415 5 1 001 000

The author describes the technique of the Italian plastic. Hard and inflamed skin edges are cut away

With the hand and fingers in dorsiflexion one part of the lower end of the graft, which had been split was sutured to the communis tendon and the other half to the longus pollicis tendon. The hand and forearm were then put up in a "cock up" splint. Passive movement was begun after three weeks. At the end of two months a fair degree of movement in the fingers was obtained.

CASE 3. A gunshot wound of the middle third of the left leg with a painful adherent scar over the tibia. After excision of the scar turned a fascia lata graft measuring 2 by 12 in. was sutured to the periosteum with its fatty side up. The new scar remained elevated and painless.

CASE 4. A gunshot wound of the left mandible with a 1-in. loss of bone midway between the symphysis and the angle of the jaw. After the excision of scar tissue and sclerosed bone tips and the fixation in the defect of a tibial bone graft 2 in. long by means of kangaroo tendon, a fascia lata strip measuring 4 by 12 in. was wrapped around the graft and sutured to the periosteum of the fragments. The graft healed.

CASE 5. A hernia of the right lung through the third inter space in the mammillary line due to an old injury to the chest wall caused by a cart shaft. After the invagination of the hernial sac through the defect in the intercostal space a lipoma from the right deltoid region was inserted into the defect.

CASE 6. Drop-foot due to a nerve injury caused by a gunshot wound of the thigh. Nerve and tendon transplantation had failed. After subcutaneous

graft was pulled down by tunnelling the subcutaneous tissues with forceps. With the foot in full dorsiflexion a part of the graft was sutured to the peroneum of the fifth metatarsal bone and the other half to the peroneum of the scaphoid and plantar fascia. Six months later the patient walked well.

CASE 7. Partial rupture of the short head of the biceps with painful and weak movements of flexion and supination of the left forearm. After

WALTER C BURDET M.D.

WALTER C BURDET M.D.

Van Hook, W. Predicted Flaps Aided by Free Fat Transplantation. *M. & R.* 9: 41, 65.

The author reports a case in which a pedicled flap of skin from the scapular region and fat from the

thigh were transplanted to repair an extensive defect in the right sternomastoid and neighboring muscles with loss of skin and considerable subcutaneous fascia and fat due to inflammation of the lymphatic glands six years previously. The technique of transplantation was as follows:

At the first operation a large flap of skin and a thin layer of subcutaneous connective tissue with its pedicle upon the shoulder was raised from the scapular region and sutured back into its original bed except on one side. Then, while a sufficient

pedunculated skin flap and the flap was sutured on the side remaining open. The thigh wound was then closed. Four weeks later after the wound had healed and light massage had been given, the neck wound was re-opened and prepared for the transplant. The skin flap and layer of thick fat which had become attached was lifted up and rotated into position in the neck. Capillary circulation in the flap was indicated by finger pressure and the almost complete absence of edema. The transplant healed in by first intention and the result was satisfactory.

In pedicled flaps the blood supply is maintained until the graft has taken. The pedicles are so formed that the blood vessels running into the transplant remain uncut until after the pedicle has fully served its purpose. In the author's opinion the raising and immediate resuturing of a skin flap back into its original location causes the pedicle vessels to dilate and thus assures adequate vascularization to the transplant through the pedicle. The addition of fat gives mass to the graft, fills the defect, prevents adhesions and facilitates the movement of one set of structures over another.

WALTER C BURDET M.D.

ANESTHESIA

Labat, G. L. Posterior Resection of the Rectum and Rectosigmoid (Kraske or Modified) under Regional Anesthesia. *Bull. Johns H. Hosp.* 9: XXIV, 34.

Regional anesthesia is the anesthetic of choice for posterior resection of the carcinomatous rectum and rectosigmoid. It does not lower the vitality as much as ether.

In a two-stage operation two procedures are valuable for left rectus colectomy: the abdominal block and the para-vertebral block. In each an injection of 1/6 gr. of morphine and 1/300 gr. of scopolamine is given one hour before the operation.

The patient is placed on the eleventh rib and thence to the iliac crest. The anesthetic used is a 0.5 per cent solution of cocaine or procaine containing 15 min-

pyemia in which one or two days previous to death two brain abscesses were punctured but not opened showed that the danger from infection of the meninges is not great.

Lumbar puncture in cerebral abscess not complicated by meningitis shows an increase of the pressure up to a severe grade, a moderate increase of the albumin and globulin content, considerable pleocytosis usually of a lymphocytic, but occasionally of a leucocytic character and absence of spontaneous coagulation and bacteria. The character of the cells in a spinal fluid punctate is dependent more upon the duration than the nature of the disease process. A lymphocytic spinal fluid does not speak against

(twenty-one of twenty-four cases) When paresis

loss of consciousness, fever and convulsions persisting for hours or days. However this may be

Wernicke (Z)

amples

Among the injuries causing traumatic epilepsy birth injuries hold an important place (five of twenty-six cases). A hereditary taint is present in half the cases. The prognosis is

Surge 19 14, 499

In the case reported the convulsions began as a localized twitching in the fingers of the right hand which then spread up the arm and involved the right side of the body. This occurred every fourteen days and lasted from one-half hour to three hours.

cases are reviewed by the author, one was entirely cured, six were much benefited, two were favorably influenced, six remained unchanged, and the rest became worse as regards psychic deterioration and the frequency of attacks.

of the cortex, but on palpation of the postero-inferior angle

poisoning (lead, alcohol, uremia) or to hysterical forms of epilepsy with a syphilitic basis, epilepsy due to disturbances in fetal development or encephalitis arteriosclerotic forms, the cases of persons over 40 years of age, and those which can be influenced by drugs. When the mind is already affected not much can be done.

ALANCASTER M D

Vollstad: The Results in Fifty Trephinations of the Skull in Epilepsy (Untersuchungen über die 50 Schädeldurchtrennungen bei Epilepsie). *Zeitschrift für die Gesamte Neurologie und Psychiatrie* 19 1909

Vollstad reviews the histories of fifty cases of epilepsy treated at the Hospital for Epileptics in Berlin. The results are

leptic attacks are of the character of general convulsions, operation is indicated if the etiology in-

sis, and if there are no pathologic changes, epilep-

Blas.
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 appen mit doppelter Wundart 2) überziehen und dann
 H. H. Chir. 972, 973, 974, 975

artery

After freshening of the grip on the jaw the cheek was split open by an oblique incision 4 cm. long made the breadth of the thumb above the left angle of the mouth. The flap was then drawn in through the incision and fastened to the margins of the de-

mouth was ung. round and used as a continuation of the epithelium toward the nose.

The pedicles were divided after seventeen and twenty-one days respectively, and the unused portions of the flaps were put back on the areas from which they were taken. Complete closure of the defects was obtained by subsequent slight operations in the mouth. The result was excellent.

BROOKER (2)

Konjetzny G. K.: The Surgical Treatment of Habitual Luxation of the Mandible. A New Operative Technique (Die operative Behandlung der habituellen Unterkieferluxation eine neue Operationsmethode). *I. h. f. H. Chir.* 97, 174, 175.

The purely symptomatic treatment of habitual

associated with dislocation. This may produce decalcification and a condition more disturbing than the luxation.

(2) um

The patient took paraffin joint capsules by means of the nasum. The

dressing applied for ten to fourteen days, during which time nourishment is given through a tube. After the eighth day soft food is given. The results in two cases were very satisfactory.

The pathogenesis of habitual luxation of the mandible is frequently a habitual recurrence of a traumatic luxation, but the condition may also

be caused by the mechanism to the capitulum which drew the latter forward when the mouth was opened. The

The procedure advocated is the best method of avoiding recurrence in open repulsion of neglected mandibular luxation. KORT (2).

Dufourmentel, L.: Reconstruction of the Upper Lip in Women (La reconstruction de laèvre supérieure chez la femme). *Presse méd. Par.* 193, 133, 134.

In the reconstruction of the upper lip by means the



Fig. 1 The wound 1 hour after the first operation.

Fig. 2 Outline of flaps: Dotted line, cutaneous flap; solid line intra-oral mucous flap.

Fig. 3 Result obtained by application of cutaneous and mucous flaps taken from the region of the wound.

(Reconstruction of the Upper Lip in a Woman—Dzefourmaki)

and whose nose was torn by the teeth of a dog. The treatment of this case required four months' seven operations and daily dressings.

The first operation consisted in cutting skin flaps in the vicinity of the injury, constructing a mucous plane by the removal of a strip from each cheek, and suturing the nasal wound. In the second operation a Thiersch dermo-epidermic graft removed from the thigh was applied. The results were so unsatisfactory, however, that in many

The author gives what he considers to be the indications for operation in colloid goiters, cysts and adenomata.

With the exception of a small group, all of the author's patients with marked hyperthyroidism have been subjected to surgery. The mortality rate has been very low—2.36 per cent in the entire series, 1.17 per cent in the vires series. Lahey does not believe that medical treatment offers any hope of permanent cure. With regard to X-ray treatment he states that we have not yet sufficient knowledge to warrant judgment.

A series of metabolism experiments, pre-operative and postoperative, have been carried out by the author. He draws the conclusion that it is a grave error to consider thyroid disease in terms of in-

hibit by means of sulphat of zinc.

The intervals between the operations need not be long; the excellence of the results obtained in this case proves the harmlessness of rapidly consecutive treatments. The case shows also that the absence of the orbicular muscle in no way hinders movement. Contraction of the zygomatic muscles is sufficient to ensure normal movement of the lips during laughing.

W. A. BRENN

NECK

Lahey, F. H. A Review of a Year's Thyroid Work. *Boston M. & S. J.* 9, citen 503.

The author

these pubescent enlargements in the presence of other signs of thyrotoxicosis is usually not of thyroid origin, as is reported experimentally made in such cases the metabolic rate was within the normal limits or only slightly increased.

How to make

A. M. ALLEN, M.D.

Hellwig, A. The Pathology of

Chir. 922, citen 75

By pathologic-anatomical research the author

patho-anatomical constancy of the specific character of the struma based on Hellwig

attempted to ascertain whether a characteristic change occurs in the thyroid gland in the conditions known as "formes frustes," "thyrototoxicosis," hyperthyroidism, "goitrous heart," and "pseudoeopithalamic goiter" and to determine the laws governing the relation between the histological structure and the severity of the clinical picture. From about sixty comparative clinical and patho-

logical studies the

author proposes the term "large follicle hyperplasia."

Clunkily the same more fully and more fully

section occurred in an adenoma. In the more severe of the latter cases, typical Basenow thoma could be recognized also in the parenchyma outside of the nodule.

Accordingly there is a good parallelism between the severity of the clinical and the histological pictures. The same histologic changes were present which in pronounced degree form the basis of classical exophthalmic goiter vs. liquefaction of colloid and an increase and enlargement of the epithelial cells. In the mild forms of hyperthyroidism, the author regards the diffuse colloid struma with large follicles as typical of the pathological-anatomical changes in the thyroid gland, just as the Basenow struma is typical of the classical exophthalmic goiter. The rapidly growing adenoma with large follicles may also cause signs of hyperthyroidism. On the basis of the diffuse colloid

logically a relatively simple picture. In light forms of hyperthyroidism it is of great importance to obtain an exact history.

In most of these ten cases a goiter had been present for a number of years before the thyrototoxic disturbances were noticed. In all, the disturbances developed simultaneously with marked growth of the thyroid. In no case could treatment with iodine be regarded as the cause of the hyperthyroidism. Two patients traced their condition to articular rheumatism, but the majority attributed

Protrusion of the eyeball was distinct in five cases and dilation of the pupil was lighter cases in the majority.

showed great restlessness, both mental and physical. Kocher regarded this as an early sign of exophthalmic goiter.

Histologically the preparations, which for the most part were obtained by partial resection of the goiter, showed in six cases the picture of diffuse

symptom-free goiters, as in the more severe cases.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Hedblom, C. A.: The Diagnosis and Treatment of Tuberculous Empyema. *Surg. Gynec. & Obst.* 1921, 32: 445.

Tuberculous pleurisy may be primary or secondary to a pulmonary perforation, or other tuberculous lesion.

The onset of a tuberculous effusion may be insidious or sudden and associated with an acute and severe constitutional reaction. A mixed pleural infection due to the perforation of a tuberculous cavity often runs an acute and rapidly fatal course. The diagnosis of tuberculous empyema is made by the demonstration of the bacilli in the

exudate by animal inoculation, or by examination of the sectioned pleura. A sterile effusion is probably tuberculous. An infected effusion may be tuberculous. Empyema may be tuberculous in spite of persistently negative findings over a long period of time. In a closed pleural cavity a sterile effusion, whether serous or purulent, should not be treated by open drainage except in the presence of an impending perforation of the chest wall. Repeated aspiration of only part of the fluid is indicated in cases of serous effusion producing definite dyspnea on exertion or symptoms of circulatory embarrassment.

The replacing of aspirated fluid by nitrogen or filtered air may be indicated in cases in which there are symptoms of active phthisis referable to the same side as the effusion. A sterile purulent effusion should be treated as though it were serous if the lung expands when fluid is withdrawn. If the lung is fixed in a collapsed condition or if the effusion persistently recurs an extrapleural pleurotomy operation is indicated.

Effusion in a closed cavity showing a mixed infection should be treated by the closed method with antiseptic irrigation, or by open drainage. Open drainage is indicated especially in cases of severe infection.

Empyema drained.
Empyema with mixed infection from a previous drainage operation or from spontaneous perforation of the chest wall requires a plastic operation, preferably following treatment with Dakin's solution. In cases of associated large bronchial fistula a plastic operation involving closure of a bronchus offers the only prospect of cure. Irrigation with Dakin's solution may be contra-indicated in the presence of an extensively diseased lung because of its corroding action on superficial lesions which might result in hemorrhage or the formation of a bronchial fistula.

When the chest is

in the course of closed

deformity

For the obliteration of relatively small cavities a skin or skin and muscle plastic is indicated. Cases of long standing with greatly thickened pleura require extensive resection of the entire chest wall after the method of Schede. Operation in several stages is indicated especially in the treatment of tuberculous empyema.

proceed
should
lower

RALPH B. BETHMAN, M.D.

Seemey, A.: Fractures of the Sternum and Their Origin (Ueber die Fractura sterni und ihre Entstehung). *Arch f. kl. Chir.* 1922, cxix, 116.

The sternum in an 8-year-old boy showed a fracture 3 cm. wide at the top which became narrow

compression of the thorax narrowed the fracture a

wide, crossed the fracture and just below passed over into the very acute sternocostal angle which extended to the end of the sixth rib. On the chin was a sharp-pointed bony process 3 cm. broad which projected about 2½ cm. The head could not be

Apparently there were foci of calcification in foetal strips of cartilage representing the sternum which had resisted the breaking-down process.

To increase the movement of the head a transverse incision was made under the larynx the

operation was performed under ether anaesthesia

during embryonic life in which these malforming causes could have been effective to prevent closure of the foetal strips of cartilage representing the sternum is that in which the length of the sternum is about 15 to 19 mm. from the crown of the head to the tip of the coccyx. (Carter, '22)

Greig, D. M.: On Puberal Mammary Hypertrophy. *Edinburgh M. J.* 1914, v, xxxvi, 153.

The case reported was that of a girl aged 14½ years with enormous enlargement of the breasts which began about two months after the first

and showed the thorax and

when she assumed the sitting position they were inadequately supported by the abdominal walls. They were of a dusky color from congestion and

may be divided into those in which the sexual organs are well formed and those in which the sexual organs are malformed. In most cases

hypertrophy due to repeated pregnancies

The cause of hypertrophy of the breast is unknown but may lie in the breasts themselves, as shown by improvement in some cases following

ment as immediate amputation

R. E. Caworth, M.D.

Schwefler J.: Diseases of the Mammary Gland in the Male (*Erkrankungen der männlichen Brustdrüse*). *Arch f. kl. Chir.* 1911, 60.

The author reviews the embryology and anatomy of the mammary gland. From Schwalbe's work

were solid, how lumen formation. Through disintegration of the cells the epithelial cones are hollowed out and the lumina of the glands open into them. In the newborn no difference is seen

polythelia. In gynecomastia true hypertrophy is to be differentiated from pseudohypertrophy due to an increase of fatty tissue. Cases of gynecomastia

also as primary disease of the pituitary body

Among inflammations—phlebitis and mastitis—mastitis puerperalis is to be mentioned. Its cause is to be sought in the entrance of bacteria at the time of birth. In the chronic stage of inflammation diffuse fibrosis of the breast may develop through the increase of connective tissue. Traumatic mastitis is often observed in athletes. Primary tuberculosis is rare; as a rule the infection has its

the myxoma. Lipoma is rare. It is not certain

Among atypical tumors of connective tissue

old than in young men and may attain the size of child's head. More common is the fibro-adenoma. This also occurs more frequently in old than in

adenoma

th

ma

that the incidence of mammary carcinoma is highest between the ages of 50 and 60 years

The author reviews the various theories as to the causal factor in the genesis of tumors. With regard to the importance of heredity opinions differ

in its behavior may suggest a benign process. The gross pathologic picture is characteristic, but if the patient is to be spared an unnecessary radical amputation, the surgeon must possess a good pathologic training.

The author presents several photographs of gross and microscopic specimens, the histories and the pathologic reports of three cases under his observation.

The incidence of traumatic fat necrosis of the breast as compared with primary breast carcinoma is as 5 is to 284 (2.8 per cent). Among benign breast tumors the ratio of fat necrosis to other benign lesions is 5.72 (nearly 7 per cent).

In all cases the condition developed when cancer was to be expected. The youngest patient was 36 years, the oldest 51. All of the patients were heavy women, none weighing under 150 lbs. The most corpulent weighed 31 lbs.

In every instance the breasts were large and full. In one instance they extended to the level of the umbilicus.

One of the chief diagnostic aids is a history of trauma. In three of the cases hypodermoclysis was the traumatic factor.

Pain in or about the breast is not a necessary feature, but extreme hardness of the tumor is a characteristic sign. Fixation of the overlying skin to the tumor mass was observed in nearly every case.

No axillary or supraclavicular nodes were present except in one case; therefore their absence may furnish a differential point between fat necrosis and carcinoma.

The time which elapsed between the receipt of the injury and the recognition of the tumor varied from 1 year and 6 months to 12 years.

C. H. Davis, M.D.

TRACHEA AND LUNGS

Rehmanfoehrer C. A Contribution to the Clinical Study of Circumscribed Suppurations of the Lungs. Abscess and Gangrene (Beitrag zur Klinik der umschriebenen Lungenerkrankungen Abscess und Gangraen). *Pariser Med. u. Chir. u. Grenzgeb.* 92, 1901, 97.

The author reports thirty cases of suppuration of the lung which were observed in the course of two and a half years. Ten were cases of pulmonary abscess. Abscess can be defined as a localized collection of pus in the lung tissue.

of the frequency with which numerous mammary glands appear outside as well as inside the milk ridge, cancer has not as yet been observed in such glands in the male. The chronic irritation from the pressure of suspenders has been suggested as a primary cause of mammary cancer in men but if this were the case the condition would be more frequent. Through their pressure braces may call the attention to a tumor already present. It is not known whether an isolated trauma may be the cause of a carcinoma but the possibility is generally admitted.

The point of origin of the carcinoma is most frequently the gland and its duct rarely the nipple. Of previous diseases those chiefly to be considered are inflammations and benign epithelial tumors. As the male mammary glands are much smaller and contain less fat than those of the female the development of cancer in them will be discovered much earlier. The focalization of a new growth inside the skin means an early perforation and breaking down of the tumor.

Growth and metastasis of the tumor take the same course as in carcinoma of the female mammary gland. Carcinoma of the breast is more frequent on the right side than on the left as the right breast is more exposed to injury than the left since most men are right-handed. When both breasts are affected it is a matter of metastasis from the one side to the other as the lymph vessels of both sides are connected.

The minimum duration of the disease is given as six months to years. The cancer of the breast is usually breast cancer. It is more common in men than in women. Its course is basically that of a chronic tumor. The primary affection however is characterized by intra-epithelial growth.

Parasitic infection of the breast and the associated conditions. These have been found in rare cases in the male but not in the female. The frequent parasite of the nipple the demodex folliculorum has been reported as a source of irritation causing cancer. According to Orth its importance in the origin of carcinoma is still unproven.

1 month (4)

Lee B. J. A Further Report on Traumatic Fat Necrosis of the Female Breast and Its Differentiation from Carcinoma. *Third Addition*. *Cancer Surg. Gynec. & Obstet.* 9, 1901, 5.

Traumatic fat necrosis remains closely allied in its clinical phases to carcinoma but some variation

in its behavior may suggest a benign process. The gross pathologic picture is characteristic, but if the patient is to be spared an unnecessary radical amputation, the surgeon must possess a good pathologic training.

case of pulmonary abscess appeared as sequelae of croupous pneumonia. The seven cases in which suppuration of the lung followed influenza proved

As treatment the author recommends at first internal treatment, unless stormy symptoms make operation necessary. Records of the quantity of

PHARYNX AND ESOPHAGUS

Vinson, P. P.: A Pedunculated Lipoma of the Esophagus. *J Am Med Ass* 19 2, Intern. Sec.

The patient was a man 62 years of age. During an attack of coughing the tumor appeared in the mouth. It was easily swallowed but left the throat sore and swollen. Six years later during an at-

cases described

The symptoms of the condition are mentioned only briefly. The fever was intermittent, remittent, or continuous. The most constant physically demonstrable sign was the riles. The contrast between a small quantity of sputum and a distressing cough is a very characteristic sign of suppuration of the lung. No rule could be found to govern the leucocyte count.

Among the complications, in addition to empyema and pleural involvement in the form of dry or

remove it at this time. On induced vomiting the growth was found to protrude beyond the teeth a distance of 11.5 cm. At the tip it was 6.5 cm in circumference, firm, and covered with normal mucous membrane. Removal through the mouth

cation

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dates the time for surgical intervention. In nineteen cases roentgenologically examined a cavity was discovered in sixteen.

In the differential diagnosis consideration must be given to empyema (absence of elastic fibers) tumor of the lung (fat globules or elastic fibers) and bronchiectasis with suppurative bronchitis (X-ray picture).

Ten of the thirty cases reported were cured; the others took an unfavorable course.

in layers

shown by

the esophagus to be reported

GEORGE E. SURROD, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Oss, O. C.: A Method of Dealing with Intestinal Loops Densely Adherent to an Inguinal Hernia. *J Am Med Ass* 19 2, Intern. Sec.

The author reports a case of a large, irreducible inguinal hernia on the left side in which the omentum and intestines were densely adherent to the hernial sac. Operation was performed under local anesthesia. The intestinal loops were separated and the sac wall was severed, patches of the latter being left on the intestines after the manner described by Cullen. The free edges of these patches, instead of being trimmed short, were left long and

the hernial sac. Operation was performed under local anesthesia. The intestinal loops were separated and the sac wall was severed, patches of the latter being left on the intestines after the manner described by Cullen. The free edges of these patches, instead of being trimmed short, were left long and



Patches of hernial sac, consisting of peritoneum, firmly fixed to the bowel, the edges folded over with fine catgut to cover raw surfaces.

folded on themselves, and their edges were approximated with fine plain catgut. In this manner the raw surfaces on the intestines were covered with smooth, shiny peritoneum.

Coley W. B., Leitch, S. Walker J. B., Hopkins, G. W., and Hutchinson, J. A.: Traumatic and Industrial Hernia. *A Surg.* 1923, Vol. 407.

Numerous Workmen's Compensation Acts make traumatic or industrial hernia an important problem to industrial organizations.

In general, traumatic hernia include (1) a small group of hernia due to direct violence (2) occupational hernia (called by the French "hernia of effort") which appear during heavy lifting, slipping, falling, coughing, sneezing, or any other effort increasing the intra-abdominal pressure (3) the hernia of weakness due to abnormal or defective development of the abdominal wall at the various sites of hernia.

True traumatic hernia which is rare is due to direct violence to the tissues by some more or less sharp object forced through at least the muscle and

of a preformed congenital sac seldom results in hernia.

Russell maintains that acquired hernia does not exist.

In Switzerland, compensation is based upon the following conditions: (1) the hernia must have appeared suddenly, must have been accompanied by pain, and must be of recent origin (2) there must be proof that it was not present prior to the accident.

In Germany in addition to these requirements

hernia is a surgical curiosity of no practical importance that only a small number of cases have been carefully investigated and that the majority seem to be relegated to the convenient classification of "vocational hernia."

In the author's opinion the term traumatic hernia should be limited to hernia due to direct violence. Lotheissen applies the term "accidental hernia" to hernia for which occupation is more or less responsible.

In an experience of thirty-one years at the Hospital for the Ruptured and Crippled, the authors have not seen a single case of tender painful, recently acquired hernia accompanied by ecchymosis in which there was a history of injury or accident.

Hernia is practically always due to the presence of a preformed sac or open pouch of peritoneum, structural weakness about the hernial orifice due to poor development of the fascia or muscles and some exciting cause such as straining at stool, coughing, sneezing, lifting, etc. Hernia results from the cumulative effect of many strains extending over a considerable period of time. Not infrequently a patient complains of inguinal hernia on one side only but examination discloses double inguinal hernia. As a hernia is usually painless until it attains a large size it may escape the patient's notice until an accident increases its size suddenly.

The authors recommend (1) compensation for all cases of true traumatic hernia due to direct violence (the number of such cases is practically negligible) (2) a physical examination of all applicants for positions in industry (3) the treatment of hernia developing in the course of duty incident to daily work as a condition due to anatomical weakness for which the industrial company is in no way responsible. WALKER C. BURKE, M.D.

Ramsey H. Green, M.D.

cover nearly all the medicolegal or compensation cases.

The third group the hernia of weakness, are rare because weakness alone without the presence

The author reports a case in which a large cicatricial hernia developed after an appendectomy done

| Age | Sex | Height | Weight | Time | Score |
|-----|-----|--------|--------|------|-------|
| 18 | M | 175 | 70 | 10 | 100 |
| 19 | F | 165 | 55 | 15 | 90 |
| 20 | M | 180 | 80 | 20 | 80 |
| 21 | F | 170 | 65 | 25 | 70 |
| 22 | M | 185 | 90 | 30 | 60 |
| 23 | F | 175 | 75 | 35 | 50 |
| 24 | M | 190 | 100 | 40 | 40 |
| 25 | F | 180 | 85 | 45 | 30 |
| 26 | M | 195 | 110 | 50 | 20 |
| 27 | F | 185 | 95 | 55 | 10 |
| 28 | M | 200 | 120 | 60 | 0 |
| 29 | F | 190 | 105 | 65 | -10 |
| 30 | M | 205 | 130 | 70 | -20 |
| 31 | F | 195 | 115 | 75 | -30 |
| 32 | M | 210 | 140 | 80 | -40 |
| 33 | F | 200 | 125 | 85 | -50 |
| 34 | M | 215 | 150 | 90 | -60 |
| 35 | F | 205 | 135 | 95 | -70 |
| 36 | M | 220 | 160 | 100 | -80 |
| 37 | F | 210 | 145 | 105 | -90 |
| 38 | M | 225 | 170 | 110 | -100 |
| 39 | F | 215 | 155 | 115 | -110 |
| 40 | M | 230 | 180 | 120 | -120 |
| 41 | F | 220 | 165 | 125 | -130 |
| 42 | M | 235 | 190 | 130 | -140 |
| 43 | F | 225 | 175 | 135 | -150 |
| 44 | M | 240 | 200 | 140 | -160 |
| 45 | F | 230 | 185 | 145 | -170 |
| 46 | M | 245 | 210 | 150 | -180 |
| 47 | F | 235 | 195 | 155 | -190 |
| 48 | M | 250 | 220 | 160 | -200 |
| 49 | F | 240 | 205 | 165 | -210 |
| 50 | M | 255 | 230 | 170 | -220 |
| 51 | F | 245 | 215 | 175 | -230 |
| 52 | M | 260 | 240 | 180 | -240 |
| 53 | F | 250 | 225 | 185 | -250 |
| 54 | M | 265 | 250 | 190 | -260 |
| 55 | F | 255 | 235 | 195 | -270 |
| 56 | M | 270 | 260 | 200 | -280 |
| 57 | F | 260 | 245 | 205 | -290 |
| 58 | M | 275 | 270 | 210 | -300 |
| 59 | F | 265 | 255 | 215 | -310 |
| 60 | M | 280 | 280 | 220 | -320 |
| 61 | F | 270 | 265 | 225 | -330 |
| 62 | M | 285 | 290 | 230 | -340 |
| 63 | F | 275 | 275 | 235 | -350 |
| 64 | M | 290 | 300 | 240 | -360 |
| 65 | F | 280 | 285 | 245 | -370 |
| 66 | M | 295 | 310 | 250 | -380 |
| 67 | F | 285 | 295 | 255 | -390 |
| 68 | M | 300 | 320 | 260 | -400 |
| 69 | F | 290 | 305 | 265 | -410 |
| 70 | M | 305 | 330 | 270 | -420 |
| 71 | F | 295 | 315 | 275 | -430 |
| 72 | M | 310 | 340 | 280 | -440 |
| 73 | F | 300 | 325 | 285 | -450 |
| 74 | M | 315 | 350 | 290 | -460 |
| 75 | F | 305 | 335 | 295 | -470 |
| 76 | M | 320 | 360 | 300 | -480 |
| 77 | F | 310 | 345 | 305 | -490 |
| 78 | M | 325 | 370 | 310 | -500 |
| 79 | F | 315 | 355 | 315 | -510 |
| 80 | M | 330 | 380 | 320 | -520 |
| 81 | F | 320 | 365 | 325 | -530 |
| 82 | M | 335 | 390 | 330 | -540 |
| 83 | F | 325 | 375 | 335 | -550 |
| 84 | M | 340 | 400 | 340 | -560 |
| 85 | F | 330 | 385 | 345 | -570 |
| 86 | M | 345 | 410 | 350 | -580 |
| 87 | F | 335 | 395 | 355 | -590 |
| 88 | M | 350 | 420 | 360 | -600 |
| 89 | F | 340 | 40 | | |

left and a pursestring suture of bronze wire is introduced and tied the hernial opening being then tightly closed. The superficial laceria are then sutured in layers as usual.

The author maintains that this method is very simple and rapid and results in a firm abdominal wall. The bronze wire is apparently well tolerated

LOCAL E. D. SMITH, M. D.

Marshall, V. F.: *Pneumococcus Peritonitis*. J
Gen. & Intern. Med. 5: 234, 1938

By adding two cases of pneumococcus peritonitis

urine. The exudate is usually characteristic, seropurulent, yellow-green, and odorless and contains a large amount of fibrin. Two forms are distinguished—a diffuse form and an encysted or lobulated form. In the former the treatment should be expectant and in the latter operative.

H. W. FINE, M.D.

Wagner, F. Biliary Peritonitis (Ueber den Stand der Frage der galligen Peritonitis) Deutsche Zeitschrift 1892. cit. 6

In Case 3 there was sudden exacerbation of an old cholecystitis. The gall bladder was tense and

made. At operation peritonitis with a yellow-green odorless seropurulent fluid was found. The appendix was normal. Drainage was followed by recovery. Laboratory findings showed a pneumococcus of

held by Schweiborn to be a gall-former on the wall of the gall-bladder. Niebach and Shoomaker are of the same opinion. Hugel claims microscopic perforations, and Horak, a crack in the vase aberrantia in stagnation of the bile due to obstruction of the large bile ducts. In serial sections Seck and Fränkel found a small rent in the wall of the gall-bladder. The rents in the septate layers did not be over one another. The contents of the gall-bladder contained bacteria but the biliary exudate in the abdominal cavity was sterile.

N. W. Zerk and L. L. Loebl found in a study of aural sections in an erosion of the mucous membrane of the gall-bladder a tear that extended throughout

the entire wall but did not run in a straight line. They attributed this to burning due to over

a part.

Blad concludes from experiments on animals that in occlusion of the choledochus and the passage of gallstones pancreatic juice flows into the choledochus and gall-bladder where an activation of tryptase occurs. The bile and gall-bladder wall are digested, and dialysis of the bile pigment is made possible. As a cause of the rare diapedesis which must be dependent upon an undemonstrable perforation, we must assume an occlusion of the gall ducts and disease of the gall-bladder wall in which the action of the pancreatic secretion may play a role. Perforation of the gall bladder is relatively harmless in the absence of infection but dangerous when infection is present. J. TRAUB (Z)

Latzko, W. The Pathology and Treatment of Peritonitis (Pathologie und Therapie der Peritonitis) *Monatsschr. Chir.* 9, 1910, 9, 3, 197, 215.

The first half of this article reviews briefly the facts known today regarding the etiology and pathology of peritonitis, particularly the puerperal form. In the latter more than in venereal peritonitis, the prognosis is determined within a period of hours. The author considers puerperal diffuse peritonitis—even streptococcal peritonitis—by no means as dangerous as it is assumed to be in publications of recent date. In the operative treatment there are five requisites: (1) evaluation of the vessel which contains bacteria and toxins; (2) the sealing or exclusion of the focus of infection; (3) the treatment of cholemia and paralysis of the intestine; (4) the control of the peritonitic disturbance of circulation and the maintenance of cardiac power; (5) the prevention of the reaccumulation of the peritonitic exudate in the folds of peritoneum.

For the evacuation of the exudate a median laparotomy from the umbilicus to the xiphisternum is advisable because it gives the best exposure of the internal genital organs and drains the exudate between the liver and the spleen and the diaphragm. The introduction into the abdominal cavity of several liters of hot sodium chloride solution and the removal of the excess with gauze compresses is also recommended.

To remove the focus of infection in puerperal peritonitis extirpation or amputation of the uterus is too radical. In such cases therefore it is best to carry out small, rapidly completed procedures such as the extirpation of ruptured ovary the suturing of a perforation or the intraperitoneal opening of a retroperitoneal phlegmon through an iliocecal incision after closure of the laparotomy wound.

When there is marked distention of the colon a

results.

The best method of overcoming disturbances of peritoneal circulation consists in the intravenous infusion of sodium chloride solution with adrenalin and the administration of digitalin, atrophanthin, and caffeine.

Complete drainage of the abdominal cavity is

by placing the upper part of the body in the elevated position (Fowler's position).

The author operates according to the principles mentioned as soon as the diagnosis is established. Operation is contra-indicated only in the last extremity and when there are signs of very severe sepsis.

Latzko has observed excellent results from the introduction of ether into the abdomen. Injurious effects were never found at autopsy.

HAUGHAUS (Z)

GASTRO-INTESTINAL TRACT

Corbin, F. The Modern Medical Treatment of Gastric Ulcer. *Medical and Surgical* 1910, 9, 2, vii.

The cases of peptic ulcer amenable to medical treatment are classified as (1) those without perforation, (2) those without perigastric abscesses.

(1) Those without organic or long obstruction.

Rosenow concludes that peptic ulcer is due to the entrance of bacteria into the blood and that attention should be given to food of infection.

Many types of medical treatment have been advocated. Lewis placed the patient in bed on a milk diet for fourteen days. Leubarts advised protein food to combat the acidity and build up the body strength. Sippy's treatment consists in the protection of the ulcer from the gastric juice.

Ulcerating may be combated by duodenal feeding with the Euborn tube. According to Erdmann, this method gives relief in 86 per cent of cases.

Friedman states that: (1) there are typical ulcer pains after ulcers have been healed, leaving only

relaxation and an increase of 50 per cent in the gastric secretion. The stomach is therefore subjected to more intense peristaltic activity without pyloric reflexion. His treatment which is based on these physiological facts consists of

1. Rest for three weeks.
2. Local applications to the abdomen.
3. Fasting for the first twenty-four to forty-eight hours. During this time the patient is allowed to chew paraffin wax and is given by rectum 500 to 1,000 calories of a nutrient mixture consisting of 1 os. of 50 per cent alcohol and 1 os. of glucose with the addition of normal salt solution to make 250 ccm.

An ulcer may be considered healed when long

the presence of any micro-organisms or cancer cells, although it undoubtedly had its origin in the cancer area.

The author cites the following case in which the thromboses occurred as the terminal sign.

A man, aged 43 years, reported complaining of pain in the stomach, vomiting, and loss of weight. Gastric ulcer was diagnosed and a gastro-enterostomy was performed. The patient improved in health and gained in weight. Four months later

in the body became thrombosed.

Two other cases are also cited, one in which thromboses of the axillary and subclavian veins occurred several weeks previous to the abdominal complaint which at operation proved to be an inoperable adenocarcinoma of the ovaries and uterus, and another in which thromboses of the femoral veins occurred in a patient suffering from carcinoma

Spriggs, K. L., and Mearns, O. A. A Study of Sixty-Five Cases Requiring Relief After Short-Circuiting Operations. *Lancet*, 1922, vol. 755.

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Moorhead, T. G.: Venous Thrombosis and Gastric Carcinoma. *Practitioner*, 1922, vol. 25.

cites the following case

posterior variety. In four cases a second operation for complications was done soon after the first. Most of the operations were done by leading surgeons.

The conditions complained of included pain, weakness, wasting, diarrhea, and vomiting. The

revealed thromboses of the internal jugular vein

seemed to be most wretched and uncomfortable. In only seven cases in which only one examination was made the food left the stomach entirely through the stoma. In some of the cases in which the pylorus was known to have been sutured there was patency. In twelve cases the food left by the

montre 2000

In thirteen cases bile was present in the stomach contents. In ten cases deformity or contraction of a loop of jejunum was observed in serial films. In three of four of these patients who were operated upon jejunal ulcers were found in the fourth the loop was found to be twisted between a former lateral anastomosis and the stoma. In one case a gastric ulcer for which the operation had been performed remained unhealed.

Of forty-nine patients seen thirty-six were treated medically. fourteen recovered. seventeen showed improvement. e well, four
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The results were far from satisfactory in most instances the original symptoms persisting after the operation. It was evident that the operation was justifiable in only two or perhaps three cases.

Schnittler Stenosis of the Intestines (Leber
Darmstege) B. and B. Ch. 10. 1700
S. 17. 124

In cases of intestinal occlusion pathological-anatomical diagnosis must necessarily first place to functional diagnosis as the function of the intestine is of the greater importance. In the foreground stands the purely mechanical function which may be hindered by gross disproportion, disturbances in the normal physiological action of peristalsis without mechanical hindrance or by combination of both factors. For example, an incomplete mechanical hindrance may through functional disturbance become a total occlusion because of weakening of the motor strength of the upper portion of the intestine. Retain stenoses which allow the intestinal contents to pass when peristalsis is slow become absolute obstructions when the peristalsis is strong. Many forms of postoperative intestinal obstruction may be explained by the united working of these two factors.

It is of the first importance to the surgeon to determine whether the cause of the obstruction is a

mechanical or a purely functional condition as operation promises results only in the former type of case.

While in chronic stenoses the diagnosis of the

mesenteric vessels and peritonitis) often suggest intestinal obstruction. In acute ileus many of the characteristic clinical symptoms may be absent. Therefore in doubtful cases one should not waste time in protracted examinations but should operate early as without intervention very few cases can be cured. Every delay means great injury to the patient.

In operation a careful technique is the chief essential. This means sufficient anesthesia induced preferably with ether, speedy localization of the stenosis, an incision not too large and the prevention of evisceration. For many years the author has opened the abdominal cavity in the iliocecal region. The localization can be done most quickly from the cecum as from here it can be determined at once whether the obstruction is to be sought

the right side

The protrusion of inflated intestinal loops, which is particularly disturbing in a median laparotomy, is prevented by the ileocecal incision. Moreover if the formation of an intestinal fistula is necessary the ileocecal incision is far more advantageously situated than the median incision with regard to the escape of fecal matter. In lieu of the large intestine not permitting radical methods the cecal incision facilitates a marginal colectomy.

UNKNOWN even when, for example, the intestine disappears into a left obturator foramen, it is always lost of a train upon the patient to complete the operation by a hurt incision on the left side after closing the wound on the right than to make an unusually large median incision.

The author recommends the establishment of intestinal fistula in postoperative intestinal occlusion and peritonitis as was urged by him in 1901.

HEGEMAN, (72)

Van Beuren, F T Lethal Factors in Acute Heme.
Van Surfl 9 175

Acute intestinal obstruction may be defined as a local condition associated with sudden abnormal

fluoroscopically by Carman at the Mayo Clinic. Friedman states that (1) there are typical ulcer pains after ulcers have been healed, leaving only

There was no evidence of malignant disease of the chest or abdomen. The process gradually cleared

caused area

The author cites the following case in which the thrombosis occurred as the terminal sign.

A man, aged 42 years, reported complaining of pain in the stomach, vomiting, and loss of weight. Gastric ulcer was diagnosed and a gastro-enterostomy was performed. The patient improved in health and gained in weight. Four months later

chew paraffin wax and is given by rectum 500 to 1,000 calories of a nutrient mixture consisting of 1 oz. of 50 per cent alcohol and 1 oz. of glucose with the addition of normal salt solution to make 250 ccm.

An ulcer may be considered healed when long-term administration is associated with normal

Most of the failures in the treatment of gastric ulcer are due to failure to keep the patient under observation and to protect the stomach from irritation. Repeated X-ray and stool examinations should be made.

204
204
204

Moorehead, T. G.: Venous Thrombosis and Gastric Carcinoma. *Practitioner* 9: 533, 33

Two other cases are also cited, one in which thrombosis of the axillary and subclavian veins occurred several weeks previous to the abdominal complaint which at operation proved to be an inoperable adenocarcinoma of the ovaries and uterus, and another in which thrombosis of the femoral veins occurred in a patient suffering from carcinoma of the stomach and pancreas.

The author concludes that these cases, whatever their cause, fall into two classes, early and late

Spriggs, K. L., and Warner, O. A.: A Study of Twenty-Five Cases Requiring Relief After Short Circuited Operations. *Lancet*, 1924, 101, 775

T
treatment after gastro-enterostomy recovered from

cites the following case

revealed thrombosis of the internal jugular vein

surgeons

The conditions complained of included pain, weakness, wasting, diarrhea, and vomiting. The gastric acidity was greatly reduced after the gastro-enterostomy. The passage of food varied from a rapid rush to evacuation requiring forty-eight hours. When the emptying time was short the patient

area on the second portion of the duodenum in a high to perform a plastic operation with resection of the ulcer and a duodenojejunostomy. It is then necessary in cases of non-stenosing ulcer to resort to double (gastro- and duodenojejunal) anastomosis with or without exclusion of the pylorus. The technique of this double anastomosis depends upon the possibility of making the duodenojejunostomy submesocolic or the necessity of making it transmesocolic or supra-mesocolic. If the duodenojejunostomy can be submesocolic, the gastro-enterostomy made at first on the jejunum should be the simple latero-lateral gastro-enterostomy and the duodenojejunostomy will also be latero-lateral, which is the technique of Kelllogg and easy of execution. If the duodenojejunostomy must be transmesocolic or supra-mesocolic the latero-lateral method becomes impracticable and it will be necessary to resort to a Y-duodenojejunostomy attached to a lateral gastro-enterostomy. W. A. BRYAN.

Judd, E. S.: Bleeding Ulcer of the Duodenum Associated with Cholecystitis. *A. Surg.* 9: 479.

Four cases of bleeding duodenal ulcer are described in which the pathologic condition in the gall bladder was more extensive than that in the duodenum. In each case the duodenal ulcer was demonstrated early and the gall bladder presented severe cholecystitis and contained stones and infected bile. There was thickening of the gall bladder wall, and complete destruction of the mucous membrane. A similarity in the clinical history was noted in that the chief symptom in each case was severe gastro-intestinal hemorrhage occurring at intervals of a few months, usually when least expected and frequently after the patient had been symptom-free for some time. Severe pain had not been present in any of the four cases.

In one patient who had very severe hemorrhages at intervals for many years and a severe hemorrhage just before his arrival at the Mayo Clinic, no evidence of a break in the duodenal mucous membrane or vessel erosion as a source of the bleeding was found at operation. A great deal of scar tissue was present in the duodenal wall, the tissues of the gall-bladder were inflamed and a definite hepatitis had progressed almost to a stage of cirrhosis. No pseudo- or sacculi were present.

The other three cases showed at operation definite ulceration on the anterior part of the duodenum away from the larger vessels but this appeared quite unimportant. Extensive hepatitis and chole-

each case it was quite clearly shown that none of the larger vessels could have been involved by the ulcerations.

Rankin, of the Mayo Clinic, in a recent review of the histories of fifty-five cases in which blood was present in the vomitus, the stool, or both, but at operation a pathologic condition was found in the gall bladder, stated that thirty-six were those of females and nineteen those of males, and that the average age of the patients was 50.5 years. Blood was present in the vomitus in thirty-two cases, in the stool in eighteen, and in both the stool and the vomitus in six.

Hemorrhage into the stomach or intestine may occur when the lesion is in the gall-bladder or liver and it is difficult to determine the bleeding point and whether there are several of them or only one.

Cases of cholecystitis in which there is occasional bleeding into the stomach or intestinal tract should be grouped with the toxic cases of gastro-intestinal bleeding as the condition is undoubtedly due to the effect of toxins from the infected gall-bladder or liver.

In deeply punched patients, bleeding sometimes

changes in the blood or other tissues leading to toxic bleeding.

There is an abundance of evidence to show that cholecystitis and hepatitis may be the source of the infection which results in bleeding and there is evidence also suggesting that cholecystitis may be the source of the infection, causing the symptom even in the presence of ulcer of the stomach or duodenum.

The details of the histories of the four cases are presented. G. H. JACKSON, JR. M. D.

Ellis, J. W.: The Cause of Death in High Intestinal Obstruction. *J. Surg.* 9: 479.

The mortality from high intestinal obstruction is given by various surgeons as 50 to 60 per cent. The signs of this condition are profound toxæmia, pain, tenderness, rigidity, vomiting, and collapse. As the same signs may be present in acute pancreatitis and acute fulminating peritonitis, the differential diagnosis is difficult and at times even impossible.

Opinion differs as to the best treatment. Some evacuate and empty the dilated loops by means of a Blomk or Moynihan tube. Others prefer an enterostomy. J. W. ELLIS.

... of the massive type such as occur from the pancreaticoduodenal artery, but in

... as primarily the gastro-intestinal

stoppage of the intestinal current between the
feet.

The proper treatment of acute ileus, whatever its cause is similar in every case, while the appropriate treatment of intestinal obstruction varies according to the mechanical, spastic, or paralytic character of the condition. Acute ileus resulting from strangulated hernia requires treatment quite as much as acute ileus arising from postoperative bands and adhesions.

toms, and over 70 per cent when operation is de-

It is unknown whether or not these factors are related

Basically intestinal damage is interference with

than the intake

Schroder, C. H.: Congenital Obstruction of the Duodenum: Report of a Case. *J Am Med Ass* 1922, LVIII, 1039

Schroder reports a case of congenital obstruction of the duodenum in an infant. Two operations were performed but the condition was found only at autopsy.

The clinical signs were projectile vomiting, loss of weight, retention, marked visible peristalsis, and a tumor in the pyloric region. The first operation revealed marked dilatation of the duodenum

ending at the junction of the second and third parts. As nothing could be found to explain this, the abdomen was closed. A jejunostomy was later done, but was not successful in improving the patient's general condition, and death resulted.

Autopsy disclosed a stomach one-third larger

the only cure

H. A. McKee, M.D.

The authors discuss the technicalities of the treatment of a duodenal ulcer co-existing with

The authors discuss the technicalities of the treatment of a duodenal ulcer co-existing with

lower by external force. The various types of lesions and the value of the

colic.

operation can be done it may be or a If a anastomosis any

metastasis is rare. Peritoneal carcinoma is very rare. In three cases there was a skin metastasis on the scrotum and the buttocks.

The early diagnosis of carcinoma of the rectum can be made with certainty only if the physician can

and in time but had been given conservative treatment for hemorrhoids, chronic catarrh of the rectum, etc., no rectal examination having been made. Only thirty-four (8.5 per cent) patients came for treatment in the first four weeks of the condition, 317 (55.3 per cent) in the course of the first year, 152 (26.5 per cent) after one year and 70 (12.2 per cent) after two years.

Exploratory laparotomy is a diagnostic and in doubtful cases, and is particularly indicated in cases of high tumors. It revealed operable carcinomata in 50 per cent of the cases. When there is the least probability of success radical treatment is indicated.

In the Berlin clinic an artificial anus is formed only when absolutely necessary. The author does not favor preliminary colostomy. This is indicated only by threatening conditions, is threatened or complete obstruction of the bowels or in operable cases in which, on account of the patient's poor general condition, the more serious operation is

adapted particularly to cases of deep tumors in

operated on according to the Knettnier method of sacral protrusion. Entire resection of laparotomy combined with amputation or resection of the rectum is unwise. These methods are of value in many

abdominal incision should be used only in doubtful cases. In some instances the abdominal operation is completed without trouble, but the sacral invasion meets with insurmountable technical difficulties so that the operation cannot be completed. For

unsuccessful cases

led to nephritis. Retention of urine must be prevented by catheterization. Iodoform poisoning following tamponade occurred in three cases, and in two resulted in death. Thereafter iodoform gauze

and without protrusion (155 cases) 20 per cent invagination (4 cases) 25 per cent protrusion according to Knettnier (44 cases) 21.7 per cent. The combination of the sacral protrusion method with abdominal incision greatly increases the danger of death. Of four patients thus operated upon three died. If these four cases are left out of consideration the postoperative mortality of sacral displacement was 17.5 per cent. In two cases a gas phlegmon developed after the radical operation.

Of the 247 patients who lived the fate of 200 is known. Eighty-seven survived the radical operation more than three years (32.5 per cent of those regarding whom it was possible to obtain information). Fifty-nine patients

three years after the operation and 3 per cent lived longer than ten years. This poor showing is to be attributed not to the poor results of the radical treatment but to the fact that most of the

the amputation method should be followed in all cases. The anal portion of the rectum should

(a) (b) Of the amputations about 50 per cent could be performed by an extraperitoneal procedure. The peritoneum should be closed as exactly as possible. The best method of caring for the end of the

sacra
the
brag
sphincter portion into the sacral opening and, in order to prevent contact of the fresh surfaces of the wound with the contents of the intestines as long as possible did not bring the part to a level until some time after the operation. The procedure suggested for the construction of a new sphincter were employed in only five cases. They were

tract causing vomiting, retching, diarrhea and tenderness.

Many theories have been advanced as to the cause of death. It has been attributed to (1) auto-intoxication from stagnation and putrefaction of intestinal contents (2) bacteriemia, (3) secretions emptied into the upper intestine (4) cerebral anaemia and resulting shock from bleeding into the

rectal carcinoma was diagnosed but the patient refused to allow an operation. Of the 610 treated cases, 516 (84.5 per cent of the total) were operated on. In 94 cases (15.5 per cent of the total) radiotherapy alone was possible. Three hundred and twenty-six persons (53.5 per cent of the total) were operated on radically. An artificial anus was formed in 166 cases (27.2 per cent of the total).

extreme dehydration of the tissues.

The clinical picture closely resembles that of acute pancreatitis, ileus and acute peritonitis. In the author's opinion the toxins causing death in these conditions are closely allied chemically. In ileus they arise in the cells of the duodenum and in pancreatitis they arise in the cells of the pancreas. In intestinal obstruction the major portion of the toxin is forced into the lymph stream and then into the general circulation. These deductions were made on the basis of repeated animal experimentation. The experimental results correlate and explain some of the varied opinions of other workers and confirm the view that the site of origin is in

the ileum. Sixteen cases (2.6 per cent of the total) were operated on for ileus, two radically. In the remaining fourteen cases an artificial anus was formed.

The proportion of male patients to females was 1.64:1. The incidence of the condition is greatest

men, and twenty-one women) were less than 30 years of age. The youngest patient was 17 years old. Of the patients under 30 years only thirteen were operable, two died just after the operation, four in the course of the first year, one in about five years. Of four who are still living one has been free from recurrence twenty-seven years, another fifteen years, and one, one year. The other thirty-two cases were inoperable.

The author distinguishes between the carcinomas of the anus, the pars perinealis, the ampulla, the uppermost regions of the pars petivina, and those which extend to several segments of the rectum. Of

normal.

The poison is identical with that found in portal obstruction, acute fulminating non-bacterial peritonitis, and in animals whose adrenals have been

Elect. — — — — —

The author reports on material from 1879 to the beginning of 1930. In all, there were 1,011 cases. Of these, the cases of 32 patients (3.16 per cent) have only partial statistical value (age and sex) for they were either not admitted, their condition being absolutely hopeless, or they at once refused surgical treatment. The other 800 cases formed the basis of the author's study.

Of these 800 cases 610 (76.2 per cent of the total 1,011) were treated. In the other 190 cases operable

cases (11.3 per cent) the carcinoma was in the upper part of the ampulla and on the margin. Only fifteen could be operated on radically. In 37 cases (6.1 per cent) the tumor spread over most or all of the rectum, ten cases were radically operated on.

Three hundred and thirty of the carcinomas



Fig. 2 Outline of the skin incision

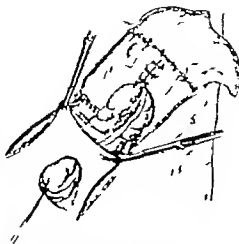


Fig. 3 Extension of the upper end of the intestine and the insertion of its extremity through the internal flap



Fig. 4 Abdomen after healing of the operative wound, with the compressing apparatus in place

(A New Method for the Formation of Continous Flow Anastomosis)

U and the compressing bar are covered with rubber. The former is inserted in a cutaneous tunnel made for it under the terminal part of the intestine and the latter rests on the incision lying over the intestine. The apparatus is easily taken apart and can be withdrawn and cleaned at any time. The patient easily learns to manipulate it and to determine the amount of intestinal compression necessary. It can be tolerated six hours or more continuously without pain or injury to the intestinal tunics.

W. A. BARNETT

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Herz

93 b, 2

By means of the Einhorn duodenal tube it is possible to obtain the secretions of the organs to be examined in a pure state and under nearly physiological conditions. The entrance of the tube into

phalo or a 5 per cent solution of Witte peptone there results a flow of 10 to 20 c cm of bile from the common bile duct which is clear transparent and poor in mucus. This is followed quite suddenly

These three biles are collected separately in sterile containers and subjected to microscopic, chemical, and bacteriological examination. The findings give clinically valuable information regard

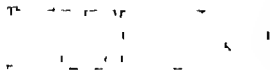
were discharged their quantity color consistency and transparency mucus content and cytologic and bacteriological character all are of diagnostic import. The bacteriological examination of the duodenal secretion and of the stimulated bile

typhoid carriers

Normally the gall-bladder is not visible in the roentgen picture. Every gall bladder seen on the

voiced by means of chemical substances such as magnesium sulphate sodium sulphate sodium phos-

cases are not seen when operable. A comparison of the primary and the functional results obtained



cent, longer than two years 6 per cent, longer than three years and 2 per cent lived longer than five years. Three patients died in the seventh year two of cancer and one of pulmonary tuberculosis. Of 170 patients with operable tumors who however, refused to allow an operation 30 per cent lived

figure a small tag of mucosa or a polyp is frequently found

The most prominent symptom is pain either before during, or after defecation. As a rule it occurs an hour afterward and persists a variable period. With the pain there may be an intermittent spasm of the sphincter.

Examination to determine the presence of a fissure should be done carefully to avoid causing pain. Palliative treatment is of value in cases of the very superficial type of ulcer.

Surgical treatment consists in excision of the ulcer. The method employed by the author is as follows:

The lower bowel is cleaned with an enema, scopolamine and morphine are given one hour before operation, and superficial and deep anesthesia of the anal area is induced with 5 per cent novocaine. The skin about the anus is grasped with forceps at four equidistant points and the ulcer exposed by evertting the anal canal. The fi-

Canto, B. A New Method for the Formation of a Continent Muc Anus (Un nouveau procédé d'anastomose continentale). *Presse méd. Par.* 924, 276, 333

In Canto's method continence is obtained by

Moon, L. L. Anal Fissure and Its Treatment. *Nebraska State M. J.* 9, vii, 38

Anal fissure anal ulcer and anorectal ulcer are the same lesion and are not to be confused with rectal ulcers which are different in etiology and symptoms.

Fissures are most frequently seen in the posterior commissure next most frequently in the anterior commissure and least frequently on the lateral walls of the anus. As a rule they occur singly

side a compressing bar. The transverse part of the

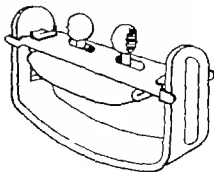


Fig. The compressing apparatus

its depth may vary from that of the mucosa to that of the muscular layers. At the lower end of the ulcer is a redundant skin tag called the "sentinel pile of Brodie." At the upper extremity of the

in order to avoid operative injuries of the vessels and (10) an anatomical exposure and a direct attack on the vessels themselves, if possible beginning at the porta of the liver.

As far as permanent results are concerned, the

important pathologic-physiologic factors of safety be not neglected.

The article contains five tables and sixty-eight illustrations. DUNSTON (2)

WILLIS, A. M. "Ideal Cholecystostomy": A Valuable Procedure in Certain Cases of Cholelithiasis. *J Am Med Ass* 9 Dec 1914, 94

In the author's opinion cholecystostomy and

1

ization or the suturing in of an absorbable pack. Injuries of the hepatic artery or portal vein are treated by suture of the vessel and reinforcement of the tube with peritoneal or fascial strips. In cases

1915 because of suppurative gall bladder disease, calculi were found in 85 per cent and non-calculous cholecystitis in only 15 per cent. In a series of 100 cases in which operation was performed during the last two years, stones were absent in 25 per cent. Ten of the latter cases (40 per cent) showed no pathologic changes.

In Willis' opinion cholecystostomy should be done

increases with the duration and the deep progress of the condition, the age of the patient and the involvement of the liver, pancreas and adjacent viscera. Among the operative injuries operative peritonitis must be mentioned, the origin of which is varied, including loosening of the ligature on the cystic duct, overlooked foreign bodies, insufficient packing, manual spread infection, loose sutures, etc. Postoperative heart failure also plays an important part even in cases in which it could be assumed that the heart was capable of withstanding the operation. The predisposing factors seem to be latent cardiac and vascular diseases, too deep anesthesia, long-continued low blood pressure, liver cell embolism of the right heart from operative pressure injury of the liver fat embolism of the cardiac muscle with associated injury of the heart muscle, absorption of toxins and psychic conditions.

In order to strengthen the basis of the heart in a distant operation the author advises a tissue sparing operative technique, care to remove all coagula and necrotic tissue in the inner wound bed, the exclusion of junctional vessels reflexes by the injection of novocaine into the hepato-duodenal ligament, rapid opening control of the blood pressure during the operation.

the operation
latent embolism
(arteries)

insufficiency of the liver injuries due to anoxemia (sudden loss of basic substances in the body) and cholemic hemorrhages with associated disease of the liver and pancreas are important causes of

tonicum from contact with the concentrated and possibly infected bile (3) tight closure. Gauze is packed around the gall bladder to prevent soiling

present are removed.

It has been found that the use of a lens giving a magnification of ten diameters is of great assistance in the internal inspection as it brings out detail

the operation includes the

Ellis, C. E. A Case of Congenital Pancreatic Cyst. *J Am Med Ass* 9 Dec 1914, 94

The author's patient was a female infant 5 months old who weighed 5 lb 5 oz at birth and 15 lb 10 oz at 5 months of age.

main cause of postoperative gastric complaints are—in addition to abnormal relationships in the position and motility of the stomach—a diminution of the total acidity or achylia gastrica which is not compensated by vicarious intestinal digestion. Clinical investigations following operation show

practice to be drawn from them are that operation must be performed before permanent anatomical changes have been established and that a careful operative technique (peritonization of wound surfaces) and the avoidance of injury in drainage are essential.

The definite functional relationship between the biliary and gastric sections shows also that only

(bile ducts)

over if the bile ducts are narrowed by extrinsic

CHIEF
(5) 88
and of

hydrochloric acid as long as a good total acidity and fermentative digestive function are present. The

in order to avoid operative injuries of the vessels and (10) an anatomical exposure and a direct attack on the vessels themselves, if possible beginning at the porta of the liver.

As far as permanent results are concerned, the simplest operative procedures have been the best up to the present time. Those most useful are: transverse suture of oval defects, circular end-to-end union with or without drainage of the hepatic duct, suturing after oblique freshening of the wound, the use of sero-muscularis flaps from the stomach or duodenum, the use of the gall-bladder to cover the choledochus, and the use of internal prostheses (rubber or galahth tubing) or a T tube left in place for several weeks. Hemorrhages from the bed of the gall-bladder which occur when suturing is impossible may be arrested by tamponade, outer union or the suturing in of an absorbable pack. Lesions of the hepatic artery or portal vein are treated by suture of the vessel and reinforcement of the tube with peritoneal or fascial strips. In cases of threatened hemorrhage the hepato-duodenal ligament is compressed entire for half an hour (with constant control of the pulse respiration and blood pressure).

The same statistics show that among the causes of death following gall-stone operations the complications caused by the disease far outweigh the direct operative injuries and sequelae. The mortality increases with the duration of the deep progress of the condition, the age of the patient and the involvement of the liver, pancreas and adjacent viscera. Among the operative injuries operative peritonitis must be mentioned the origin of which is varied including laceration of the ligature on the cystic duct overlooked foreign bodies, insufficient packing, marginal spread incision loose sutures, etc. Postoperative heart failure also plays an important part even in cases in which it could be assumed that the heart was capable of withstanding the operation. The predisposing factors seem to be latent cardiac and vascular diseases, too deep anesthesia, long-continued low blood pressure, liver cell embolism or the right heart from operative pressure injury of the liver, fat embolism of the cardiac vessels with associated injury of the heart muscle, absorption of urea, and pericardial conditions.

In order to strengthen the ability of the heart to withstand operation the author advises a tissue-sparing operative technique, care to remove all coagula and necrotic tissue in the inner wound bed, the exclusion of myonous vagus reflexes by the injection of novocaine into the hepato-duodenal ligament, rapid operating, control of the blood pressure during the operation, careful selection of the operation and careful testing of the heart for latent insufficiency as advised by Hatzekstein and Varro. Postoperative pneumonia is not rare, malnutrition of the liver injuries due to anoxia (sudden loss of basic substances in the body) and cholemic hemorrhages with associated disease of the liver and pancreas are important causes of

Important pathologic-physiologic factors of safety be not neglected.

The article contains five tables and sixty-eight illustrations. DANCY (2)

WILKES, A. M.: "Ideal Cholecystotomy": A Valuable Procedure in Certain Cases of Cholelithiasis. *J. Am. M. A.* 92: 1271, 93.

In the author's opinion cholecystotomy and

101 because of suppurative gall bladder disease, calculi were found in 86 per cent and non-calculous cholecystitis in only 14 per cent. In a series of 100 cases in which operation was performed during the last two years stones were absent in 25 per cent. Ten of the latter cases (40 per cent) showed no pathologic changes.

" " "

The gall-bladder is then carefully inspected internally and externally and any calculi that may be present are removed.

It has been found that the use of a lens giving a magnification of ten diameters is of great assistance in the internal inspection as it brings out detail that could not be detected with the unaided eye.

In closing the gall-bladder incision, a small curved intestinal needle and No. 6 or No. 7 plain catgut are employed. The first line of suture includes the muscular and submucous coats, but does not penetrate the mucosa.

ELLS, C. E.: A Case of Compound Pancreatic Cyst. *J. Am. M. A.* 10: 1713, 93.

The author's patient was a female infant 5 months old who weighed 5 lb. 5 oz. at birth and 1 lb. 10 oz. at 5 months of age.

a broad base. The cyst was removed and the abdomen closed by through-and-through silkworm gut sutures.

The specimen weighed 335 gm and consisted of

In addition Bartlett reports three cases, two of Banti's disease and one of Gaucher's disease.

much improved six months after operation, and one was discharged from the hospital improved. The patient with Gaucher's disease died following the operation.

portance in determining whether a splenectomy should be done or not. If an infant or child has an enlarged spleen with a blood picture of secondary anemia and evidence of blood destruction, and if

Primrose, A. Pancreatic Cyst and Pseudocyst: Report of a Case of Total Extirpation by an Extraperitoneal Method. *Surg Gynec & Obst* 1921 xxvii 437

Primrose gives the classification of pancreatic cysts as suggested by Robson and Bloomfield in 1909

splenectomy is hemolytic jaundice
7 Banti's disease and Gaucher's disease repre

anterior parietal peritoneum by continuous catgut sutures. The cyst was enucleated as far as possible

in the anemia and general condition
O. S. FROST, M.D.

operation and is usually developed in the abdominal wall

CARL R. STEDMAN, M.D.

Bartlett F. H.: The Indications for the Removal of the Spleen in Infants and Children. *Am J Dis Child* 1921 xxii, 283

Bartlett attempted to collect the reports of all previous splenectomies on children under 14 years of age. Fifty-one cases are tabulated as follows: von Jaksch's disease five; splenic anemia and Banti's disease, twenty; Gaucher's disease four; hemolytic jaundice fifteen; tuberculosis, one; septic splenomegaly, one; unclassified cases, five

MISCELLANEOUS
Descoings, P., and TURMECA, D.: The Important Abdominal Lymph Currents (Les grands courants lymphatiques de l'abdomen). *Arch francobriges de chir* 1922, xiv 398

moment N. l. total

pages.

by the convergence behind the pancreas of (1) a gastric trunk (2) a splenic trunk and (3) a coeliac trunk.
W. A. BROWNE

Churchill, A.: Drainage in Abdominal Emergencies. *Brit Med J* 1922 1, 591

of the patients reached the hospital several days after the onset of the symptoms.

The incision varied with the condition present.

thickness of the abdominal wall which gives good exposure but favors hernia.

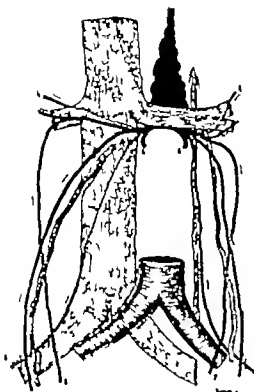
Drainage was used only in the presence of free pus or thick purulent fluid. Fluid was not swabbed and the peritoneal cavity was not irrigated. Only one drainage tube was employed and usually this was inserted in Douglas' pouch. After the operation the patient was placed in the Fowler position.

| | Total | Remov- ed | Deaths | Per cent |
|---|-------|--------------|--------|----------|
| Acute appendicitis without peritonitis | 2 | 0 | 0 0 | |
| Acute appendicitis with pelvic peritonitis | 29 | 7 | 6 8 | |
| Acute appendicitis with general peritonitis | 5 | 4 | 20 0 | |
| Acute appendicitis with localized abscess | 4 | 4 | 0 0 | |
| Perforation of stomach or duodenum | 5 | 3 | 0 0 | |
| Total | 75 | 7 | 3 | 4 |

In four of fourteen cases of localized abscess the appendix was not removed. An appendectomy was not done if it was difficult to locate the appendix and the bowel was friable.

The complications which developed were pneumonia, pelvic abscess, fecal fistula, subphrenic abscess.

13
W. A.



Schematic drawing of the course of the large lymphatic currents of the abdomen in their relation to the venous system. The right, celiac, system is represented on the right by the celiac trunk, reduced to a size of small caliber the ascending lumbar vein. Urinary currents on the right side (1) right genital current, (2) inferior current (3) anterior current (4) posterior current (5) current of the right leg, (6) end of right intestinal current. 2, 3, 4, 5 and 6 same currents on left side.

The genital current accompanies the internal spermatic vein.

The urinary current is represented by several confluent veins some of which are in front and others behind the renal vein. The anterior confluent (1) is the renal vein.

1. URETER

2. THE GASTRO-SPLENO-COELIC CONFLUENT IS FORMED

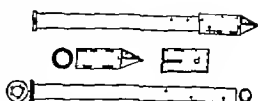
The swabbing out of fluid from the general peritoneal cavity and irrigation with saline or antiseptic solution may disseminate septic material and translocate the inflamed peritoneum. A drainage tube often acts as a focus of infection, irritating the peritoneum and rendering it less capable of

abdominal wound.

The author concludes that more restricted abdominal

Robertson, G.: Drainage of the Lower Abdomen. *Practitioner* 1913, vol. 905.

For cases of free fluid or seropurulent exudate within the abdomen the author advises the use of a suprapubic drain to be put into place after the lesion has been exposed but before the visceral dis-



case is dealt with. When this is done there is less absorption of toxins by the peritoneum when it is traumatized by the operation.

the abdomen to receive it.

The grade is then removed through the incision. The tube is removed at the end of the operation or in a few hours. WILLIAM J. PICKETT M.D.

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC

Schubert, A.: The Causes of Congenital Torticollis (Die Ursachen der angeborenen Schiefhalskrümmung). *Deutsche Zeitschrift für Chirurgie* 1913, vol. 33.

After a review of twenty cases of torticollis treated surgically the author comes to the conclusion that the congenital muscular wry-neck is a distinct entity. The most prominent characteristics of the condition are: (1) degeneration of the sternocleidomastoid muscle which ultimately extends to other muscles; (2) asymmetry of the skull due to pressure from the shortening of the sternocleidomastoid.

An extra uterine origin can be excluded, and

does not disappear completely after extirpation of the diseased muscle. A primary disturbance of the central nervous system is to be assumed as this would explain all of the symptoms.

The author advises surgical treatment as early as possible.

was done only once in a very severe case the trapezius did not become paralyzed and the result was very good. CANNON (2)

FRACTURES AND DISLOCATIONS

McNeely, R. W.: Dislocations and Fracture-Dislocation Occurring at the Acromio-Clavicular Articulation. *Annals of Surgery* 1913, vol. 56.

and is excluded also by the ligamentous bands in the neighboring muscles. The asymmetry of the skull is due not only to the contracted muscle but also to a centrally produced disturbance of growth. It

carry with them the points of their insertion. The violence is usually

In subluxations, which are comparatively frequent, the capsular ligament is torn. Complete luxations are associated with marked and typical

McNelly is particularly well pleased with the

the most marked elevation produced by the acromial end of the clavicle. The skin incision is deepened to the capsule of the acromio-clavicular joint. An attempt is made to avoid blunt dissection and hand contact

scapula are exposed. A difficulty is encountered in

slipping under its outer end

Holes are drilled in the outer end of the clavicle about $\frac{1}{8}$ in. apart and about the same distance

outer end of the clavicle above the acromion process of the scapula. The shoulder of the affected side droops. In the fracture cases crepitus can often be elicited.

Subluxations give little cause for anxiety except when they are complicated by other lesions. A Sayre or Stimson figure-of-8 dressing with a firm pad over the humeral head

and the palm of the injured side near the opposite shoulder. It is well to pad the elbow and the hand thoroughly, preferably with felt. A very light plaster-of-Paris dressing is placed over the Velpeau dressing to aid in the immobilization of the injured part and prevent the loosening and slipping of the gauze.

A band of C

is closed with one stitch. Light exercise may be instituted immediately.

Penckwood, H.: An Apparatus for the Treatment of Fractures of the Humerus (Appareil pour le traitement des fractures de l'humérus). *Sitzungsber. d. kais. Akad. d. Wiss.*

The new apparatus described can be used for fractures of both the right and the left sides by simply turning it. It consists of a bent metal plate which is padded and fastened to the chest by a sort

Langston tendon and phospho-bronze wire are not as suitable as piano wire

position The great advantage of this apparatus is that it makes possible a completely ambulatory treatment of fractures

direction The great advantage of this apparatus is that it makes possible a completely ambulatory treatment of fractures

SURGERY OF THE BONES, JOINTS, MUSCLES TENDONS, ETC.

Bum A.: Mobilization in the Surgery of the Extremities (Die Mobilisierung in der Extremitätenchirurgie) *Med Kl* 623 iv 1931

Function following fractures and luxations of the extremities is endangered by inactivity of the limb leading to ankylosis and muscular atrophy. The

super-malleolar fractures of the fibula and most subperiosteal fractures of the bones of children. Luxations should be mobilized after five to ten days of immobilization.

Röntgenography is of greater value in the control of the replacement of the fragments than in the diagnosis.

SCHMIDT (X)

Zakradnicky: The Treatment of Injuries of the Knee Joint (Behandlung der Kniegelenkverletzungen) *Revidiro* für 6. Jahrgang 19 1, 24, 52

The author had occasion to treat 225 cases of gunshot injuries of the knee joint also six cases of

removed primarily

In infected injuries the wounds of the soft parts were laid wide open and as far as possible foreign bodies were removed from the soft parts, the joint body and the joint cavity. The joint cavity was then irrigated with antiseptic solutions and closed by suture around a drain.

If these measures were insufficient, arthrotomy with drainage or the procedure of PAIR as used in some cases even this treatment was useless, an atypical or typical resection or amputation being necessary. The Bier treatment is of value only in early cases. Rhythmical hyperemia also does not produce the desired results. Wilkens method, in which passive motion is begun at the very beginning, whether infection is present or not gave very good results in the one case in which it was used.

quire dispassionate treatment and some require operative replacement. The open operation has the advantage that functional treatment may be instituted very early. Bier's hyperemia favors the formation of callus and extension increases the

shrivelled became suppurative. In eleven cases,

non-perforative wounds due to bullets all recovered ten without operation. In one case amputation was necessary because of threatening sepsis. The knee cases treated for injuries of the knee joint acquired in civil life included six cases of injury caused by sharp instruments and three cases of injury caused by a dull force. In five of the six cases of injury due to sharp instruments the knee joint was drained. In three of these cases wide re-opening was necessary. One patient died from sepsis.

Knee (2)

Heb... ..

the functional failure of the musculature resulting from severe toxic injury. In tuberculous, gonorrheal and non-septic injuries the connective tissue and musculature do not appear to be injured so seriously. Payr successfully mobilized joints a second and third time after failure of the first mobilization.

The author advises against extirpation of the patella unless this is absolutely necessary as the presence of the patella is of importance for the maintenance of muscular balance. Lateral loose motion may be prevented by the formation of lateral ligaments from strips of fascia. Particularly in ankyloses due to gunshot wounds, preliminary operations such as excision of cicatrices skin transplantation and plastic on the tendons and

case 617

The author reports on the subsequent examinations of mobilized joint ankyloses of the lower extremity treated in the Payr Clinic. The report includes total arthroplasties on eighty-five knee joints, twenty hip joints, and five ankle joints. In the knee cases the operation was successful in 78 per cent and a failure in 22 per cent. Twenty-five cases showed very good results twenty-three good results and fifteen unsatisfactory results. In sixteen cases the ankylosis recurred in one a Schlotter joint resulted and in another death. In the hip cases the results were very good in six and good in five. In six cases the ankylosis recurred. Five ankle joints showed a very good result. The cases considered as showing very good results are those in which steady firmness with complete or almost complete painlessness in use and active flexibility of at least 100 degrees in the knee and 60 degrees in the hip joint and a range of motion of 80 to 110 degrees in the foot were obtained. The result is considered good when a similar range of motion was obtained but the steadiness was uncertain and pain was present occasionally. The result was considered insufficient when there was insufficient firmness the joint was loose and the range of motion as less than 60 degrees.

At the present time very little is known regarding

deferred at least one year after the primary infection has subsided the longer the interval the better. Comparative measurements of the temperature and sensibility to pressure and massage are of importance for the discovery of a latent infection. Joints become ankylosed from lack of energy even in the absence of infection, especially in the fifth to the sixth week, at which time mobilized joints enter the hyperplastic stage. The swelling and tenderness of this stage completely disappear after a few weeks. Schlotter joints are cured by careful technique and sparing rest-work.

Complete function of the mobilized joint is to be expected only after two years. Therefore this procedure is not adaptable for persons who are not able to devote sufficient time to the after treatment. In bilateral ankylosis, unilateral mobilization is indicated.

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massage possible should be get up for an ambula employed lasts eight one-half to one year

Experiences with the hip joint are in general the same as those with the knee. The functional capacity of the gluteal muscles which, like that of the quadriceps, is sometimes restored quite late determines the sufficient fixation of the femur

which may be painless. The best results as regards the ankylosis are obtained in gonorrheal joints. The joint ankylosis especially

elongated or shortened as desired and are movably attached to the breast plate and to the support of the forearm so that the forearm can assume any position desired. By screwing the jointed connectors, the apparatus may be held in the desired position.

Question: What is the advantage of this apparatus? that it makes possible a completely ambulatory treatment of fractures. BREYER (Z)

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Baum, A.: Mobilization in the Surgery of the Extremities (Die Mobilisierung der Extremitätenchirurgie). *M d K* 9: VII, 571

Function following fractures and lacerations of the extremities is endangered by inactivity of the limb leading to ankylosis and muscular atrophy. The

point of fractures is superficial. In certain frac-

supra-malleolar fractures of the fibula, and more subperiosteal fractures of the bones of children

diagnoses

Schmitt (Z)

Zahradnický: The Treatment of Injuries of the Knee Joint (Behandlung der Kniegelenksverletzungen). *Reichly'scher Jahreszt* 1, 34, 37

The author had occasion to treat 225 cases of gunshot injuries of the knee joint, also six cases of injury due to sharp instrument and three cases of injury due to dull instruments. For the prevention of infection of the injured joint, aseptic and then antiseptic dressings were applied, the knee was immobilized, and antiseptic solutions were injected. In most cases a 3 per cent solution of phenol was

by suture around a drain

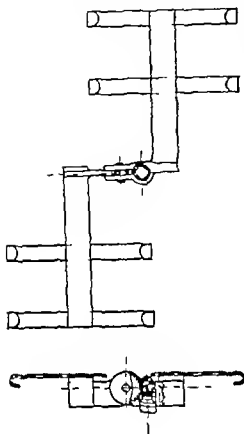
If these measures were insufficient, arthrotomy

early cases rheumatoid hyperemia also does not produce the desired results. Williams' method, in which passive motion is begun at the very beginning, whether infection is present or not, gave very good results in the one case in which it was used.

Of the 225 gunshot injuries 174 were perforative (70 were caused by bullets and four by shrapnel)

For all wounds there was one death, that of a patient injured by shrapnel. Ten wounds due to shrapnel became suppurative. In eleven cases, however, the wound healed by suture.

section of the knee joint and one of the upper extremities. Of the twenty-two patients with



dorsal scoliosis with marked rotation of the thorax. No conclusion can be drawn as yet, however, regarding the permanence of the results.

Further work on the method is still necessary; a special endeavor must be made to obtain over correction of the primary curve and correction of the secondary curve.

W. A. BRIDGEMAN

Von

On the basis of two of his own cases of which one was operated upon successfully, two cases operated upon by Katschenstein in 1907, and the

is usually found which probably causes traction and pressure upon the spinal cord and the nerve roots.

by
by
the
formation of trabeculae and diverticula, dilatation of the ureter, and occasionally of the renal pelvis as the result of the back pressure and finally contracted kidneys. The history usually shows a free interval between a previously existing incontinence and the incontinence appearing about the tenth year of life. There is nocturnal and diurnal enure

noted.

The prognosis is poor, the ascending pyelonephritis usually ending fatally. Timely operative interference separation of the adhesions between the

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WILSON (2)

SURGERY OF THE NERVOUS SYSTEM

Jonesco, T. Resection of the Cervicothoracic Sympathetic Nerve (*La résection d. sympathique cervico-thoracique*). *Presse med. Par.* 19. xxx 553

The surgery of the cervical sympathetic nerve has come into prominence only since 1896 when it was first used in the treatment of exophthalmic goiter. It has been tried also in cases of epilepsy, migraine etc. With the exception of glaucoma

in which removal of the superior cervical ganglion appeared sufficient to bring about intra-ocular changes, total resection of the cervicothoracic nerve—

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SURGERY OF THE SPINAL COLUMN AND CORD

Coffield, R. B.: Hypertrophic Bone Changes in Tuberculous Spondylitis. *J Bone & Joint Surg* 1923, 5: 433

and guinea-pig inoculations were positive.

All of the cases in which hypertrophic bone changes were found were those of patients over 40 years of age. The fact that these changes were

peritrophic bone changes caused ankylosis of the vertebrae from the twelfth dorsal to the fourth lumbar. The manner in which the new bone had formed along the course of the fibers of the anterior and lateral spinal ligaments suggested that the deposit had occurred within the ligaments. The body of the second lumbar vertebra showed extensive degeneration, but not collapse. The author's conclusions are

infection.

It is possible that many cases of spondylitis diagnosed as non-articular osteo-arthritis are of tuberculous origin. This condition has been found only in adult.

Since spinal fixation is considered the rational treatment for tuberculous spondylitis and since

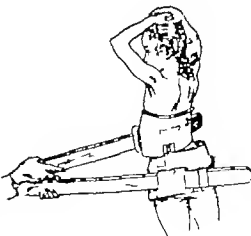
The histories of the ten cases are given in full and illustrated by four cuts. JOHN W. POWERS, M.D.

Alton, C. J.: A Case of Fracture of

The case reported was that of a young negro who, after performing some light work, experienced a sudden and severe pain in the left lumbar region

interior organs autopsy revealed considerable necrosis of the bodies of the third and fourth lumbar vertebrae. The first and second showed the same

Hammock, J.: The Treatment of Scoliosis by Plaster Jackets (Contrôle par le traitement de la scoliose par les corsets plâtrés). *Rev d'orthop* 1923, 1: 1



the surface radiation of the current in the epidermis moistened by perspiration. Not infrequently the region of the current mark shows an electrogenic edema which is differentiated from inflammatory edema by its sudden appearance, pallor and hardness. Injury of the blood vessels may result in thrombosis. The effect of the current may be lasting enough to produce a primary necrosis of large areas of an extremity.

The distant symptoms include the so-called in immediate lesion caused by the current following the shortest route across skin folds in the region of joints which touch on their flexor surfaces, producing electric burns in the folds of the elbow, shoulder, hip, and knee distant from the point of entry and exit of the current. The effect on the muscles may consist of severe spasms and spontaneous lacerations. The heart, kidneys, and liver show injuries which may be due to toxins.

The course of the injury from strong electric currents shows a series of typical complications. The advancing necrosis proceeds from the eschar and is due to a necrobiosis leading gradually to tissue death. The late necrosis may not appear for days or weeks. Secondary hemorrhages may result even in a dry and aseptic course. Home and ambulatory treatment should be avoided when the eschar is deep. Infection of the injured tissue aggravates the condition. The absolutely dry treatment is therefore indicated only up to the stage of granulation. In injury of the skull there may be extensive necrosis of the bones with osteomyelitis of the skull, suppurative meningitis, and brain abscess due to cooking of the cortex of the brain and secondary bacterial invasion. On the basis of his own experience the author recommends early

other method yet devised, surgical or otherwise and the contra indications to operation do not apply to it. As compared with the surgical removal of the tonsils and adenoids, X-ray treatment is free from serious complications.

The technique is comparatively simple. In the average case a 7-in spark gap, 5 ma. of current four minutes time, a 10-in distance and a 3 mm aluminum filter are used. The patient lies face downward with the head turned to the side, the position and angle of the patient and tube cor-

to the parotid, the thyroid, the pituitary and other adjacent glands has been amply tested in the past ten years in cases in which tuberculous glands of the neck have been treated by much larger doses, some of them being given as high as forty doses, whereas the dose for the tonsils and adenoids has never exceeded fourteen treatments in a series of nearly five hundred cases which have been treated in the past two years.

The method is indicated especially for chronic

ADOLPH HARTMAN, M D

Lafferty R H. and Phillips, C C: Radiotherapy of Deceased Tonsils. *J Radiol* p 33, 13.

The first fifty cases of deceased tonsils treated by the authors fell roughly into four classes as follows:

1. Those of adults with large soft hyperplastic tonsils with deep crypts which generally discharged or contained pus.
2. Those of children with large infected tonsils and crypts generally not so deep.
3. Those of adults who had had their tonsils or at least a part of them, removed and who retained a part of the tonsil with scar tissue.
4. Those of adults and children who had had the

histologic findings. Besides necrosis there are organic disturbances which resemble atypical forms of well known conditions of other etiology. The author has observed a case of spinal paralysis which developed gradually the first week after the accident.

(Review E)

ROENTGENOLOGY AND RADIUM THERAPY

Witherbee W D. The Treatment of

becomes virulent for various sorts of bacteria through adaptation. Its normal habitat is the intestine where it lives at the expense of the colon bacillus. In several thousand tests it was found

The treatment must be stopped as soon as the

previously. On the other hand, bacteria can defend themselves against the virus.

Bacterial disease is a battle taking place in the organism between bacteria

limited time

injections have proved harmful. BERNARD (2)

SURGICAL DIAGNOSIS, PATHOLOGY AND THERAPEUTICS

Jager H. Injuries from Strong Electric Currents
(Ueber Starkstromverletzungen). *Schweiz med
Wochenschr.* 1911 xli, 530

of bacteriophage culture immunised an animal
weighing between 200 and 300 gms. In seven cases

may become dangerous under certain circumstances. The relation of the current strength to injury is discussed in detail.

The multiform clinical picture of injury from strong electric currents warrants a definite grouping of the symptoms.

The primary picture shows general, local and

his theories

KROEMER (2)

BLOOD

BUS

While bacteriological experiments in vitro with human serum at body temperature have not shown that urotropin has any considerable bacterioidal action, clinical experience has taught that even a comparatively small quantity of it in the blood stream has a distinct therapeutic effect. It has been proved by repeated blood examinations that the bacterioidal action of the blood is strongest from eight to ten hours after the injection of urotropin. It is therefore clear that substances remain in the blood for a considerable time which have at least a restraining effect on bacterial growth.

For the injection, a 20 per cent solution of urotropin in physiological sodium chloride solution is used. Single daily doses of 10 to 50 ccm are given

traction lasting for some time

The points of contact show local symptoms; the current mark (electric burn) causes the three

3 Evidence strongly suggests that the same far-reaching proximal reced occurs in somewhat less degree in functional stasis of the colon as in marked colonic constipation. The roentgen ray shows apparently that there is motor delay not only throughout the entire colon but also secondarily in lesser degree, in the small intestine.

3 Any alimentary sphincter subjected to increased intravisceral tension originating either immediately proximal or distal to it tends to give way and if this tension is sufficiently great the sphincter becomes dilated and incompetent and

stasis

5 Rarely but to be mentioned as a possible principle, lesions lessening the recoil-absorbing power of at least certain proximal portions of the alimentary tract determine a greater motility distal to it.

6 It has been assumed that tension within the alimentary tube, if not constant throughout may be proximally influenced by changes in distal tension.

7 Whenever there is over rapid motility of the small intestine the form of the small intestine will reflect it, indicating overdistension and increased fluidity of the intestinal contents, particularly

obscured by the oxygen, and the size, shape and position of the stone can be easily determined. The black of the oxygen against the lighter shadow of the kidney substance makes a better contrast for the study of the kidney tissue itself than the white shadow of the opaque solution against the surrounding lighter shadow of the kidney. Oxygen meets fully the requirements of a contrasting medium as it is not toxic or irritating and, as it is more permeable than any of the opaque solutions, it will pass obstructions or constrictions more readily than solutions.

Pneumopyelography is perhaps most advantageous in the following groups of cases:

1 Stone in the ureter pelvis or calices. The

11

3 Pyonephrosis

1 Chronic — — —

in which the pelvis, when injected with an opaque solution cannot be clearly differentiated from the vertebra.

A detailed description of the technique used is given and one case illustrating the advantage of the method is cited. The following conclusions are appended:

as an opaque solution

3 In certain cases it is a greater aid in roentgenographic diagnosis than the use of opaque solutions.

ANDREW HARRISON, M.D.

LEGAL MEDICINE

Requirements and Liability in Actions for Service
F. M. H. 111 (1911) 104 S. E. R. p. 905

This was a suit to recover for professional services rendered the wife of the defendant, Lincher. In affirming a judgment in favor of the plaintiff the court held that a person professing to practice surgery or medicine for compensation

number were due to peritonitis and adhesions of other than appendic origin. General abdominal carcinomatous metastatic carcinoma and tuberculous peritonitis were next in frequency in the order named. Organic conditions causing atypical states of the small intestine secondarily included among others: cecal appendicitis pathology post-operative conditions following appendectomy and pressure due to tumors outside of the digestive tract their relative frequency being in the order named. Of the functional conditions many were indeterminate. Constipation was a very frequent cause.

ANDREW HARRISON, M.D.

Thompson, S. A. Pneumopyelography. A Preliminary Report on Its Advantages and Technique. *J. Urol.* 19, no. 285.

Bringing the renal pelvis and calices into relief by the use of the opaque solution.

five of these, attacks of tonsillitis ceased after one treatment and in three after two treatments. In the remaining twenty-one cases an average of five treatments was given. The results were satisfactory. Cases of Class 2 also respond favorably. Of the eleven cases treated, ten showed perfect results and in the eleventh the treatment was not completed. The average number of treatments given was 6.3.

normal conditions by means of the roentgen ray with the exception of lesions of the duodenum which are not included in this presentation. Certain

Macal, A. J. : The X-Ray Treatment of Tonsils with the Conjoint Use of the Ultraviolet Ray. J. Radiol. 1921, 12, 13.

In children there are three types of tonsillar conditions:

reddened and congested and infection is clinically established as evidenced by the associated systemic

apoptosis

frequently it is

part involved and thus render direct diagnosis

Mills, R. W. : X-Ray Evidence of Abdominal Small Intestinal Stasis Embodying an Hypothesis of the Transmission of Gastro-Intestinal Tension. Am. J. Roentgenol. 1921, 12, 100.

It seems that no considerable effort has been made to investigate small intestinal normal or ab-

or hypertrophy

After setting the bone the defendant applied a Buck's extension, and placed the limb in a splint surrounded by bandages. After the lapse of about ten days the plaintiff expressed his regret to the

A physician and surgeon of large experience in the treatment of fractures pronounced the results achieved by the defendant as a fair average of those obtained by the ordinary skillful physician and stated that out of 100 similar cases treated the results in 40 per cent would be substantially like those in this case. There was a sharp conflict in the testimony as to whether traction was removed before other measures were taken.

Injured surface of the lower fragment to override the injured surface of the upper fragment. The extension was removed but, it was said, the defendant did nothing to hold the injured surfaces in proper position except to place the limb in a pneumatic ambulatory splint so that the patient could be removed from the hospital to his home.

14 miles over rough country roads, in a truck

walking or work and caused much pain

J. A. CASTAGNO

fact for the jury

In an action by a physician and surgeon to recover the value of professional services rendered the burden is on him to prove that he is a physician,

receiving the services to show a want of due care, skill, and diligence. When a physician or surgeon renders necessary professional services to a wife with her consent, the husband is primarily liable therefor, even in the absence of any expressed consent on his part.

observation

The court charged the jury that, in considering whether the plaintiff exercised ordinary care and skill in his diagnosis and treatment of the defendant's

No Evidence of Negligence Against the Defendants.
Horber vs. Dand et al (Miss), 134 N. E. R.
p. 1035

appear but apparently it consisted in the opening of an abscess in the neck or throat. Neither did it appear who performed the operation or

representative of the decedent may maintain an action therefor. There was no evidence however that the operation was not necessary and proper or not properly performed, or that it had any part in causing the death of the child. In short, there was entire absence of proof tending to show actionable negligence on the part of either defendant. The order denying the plaintiff a new trial, after a verdict had been directed for the defendants at the close of the plaintiff's evidence, was affirmed.

Malpractice Found in the Treatment of an Oblique Fracture.
Dowdell vs. Parkard (W. V.)
35 N. W. R. p. 104

by suture of the vesicovaginal and vaginorectal peritoneum. The bases of the broad ligaments are sutured together and the edge of the sigmoid colon is sutured to the vesicopelvic peritoneum.

The most important postoperative complication is generalized peritonitis. During the course of the operation the ureters or bladder may be injured or a urinary fistula may develop as the result of lardy necrosis of the bladder or ureteral walls. Radium treatment is given postoperatively.

LOVELL E. DAVIS, M.D.

CONFIDENTIAL

The following analysis is based on 232 patients subjected to supravaginal hysteromyomectomy more than one year ago. None of them had reached the menopause. Both ovaries were conserved in ninety cases, one ovary was removed in eighty-one, and both ovaries were removed in sixty-one. From the replies to a questionnaire sent the patients the

ovaries

I. E. BURNLOW, M.D.

ADnexAL AND PERI-UTERINE CONDITIONS

D. AUNOY, R., and KING, E. L. Lithopedion Formation in Extra Uterine Fetal Masses. *Am J Obs & Gynec* 1922, 31: 377

The authors have found seventy-eight cases reported since 1880. To this number they add another as follows:

The patient was a colored woman, aged 90 years, who had a large movable sensitive, and smooth mass on the left side of the abdomen which was connected with the uterus fixed in the pelvis and presented several nodules on the surface about three to five finger breadths above the symphysis. The patient stated she had had the mass for the last fifty years and that it had given her no trouble. She died from an intercurrent disease.

The following salient features are quoted from the

1

1. At a time when general health was good or improved one year or more after the operation.

2. Better end-results and greater comfort are obtained by ovarian conservation.

3. Everything being equal, better end results follow conservation of both ovaries than the retention of one but the preservation of one is far better than the removal of both.

4. Conserved ovaries seldom give subsequent trouble. In none of the cases was a second operation necessary.

5. Undue emphasis has been placed on the frequency of cystic and other forms of degeneration in conserved ovaries. This can be avoided by careful

1. At a time when general health was good or improved one year or more after the operation.

7. The surgical menopause is not so rare in all cases in which both ovaries are removed. The

1. At a time when general health was good or improved one year or more after the operation.

9. The high-strung neurotic woman is apt to suffer more severely than the woman of the phlegmatic type.

0

perma

anterior to the uterus and does not spring from this organ but is intimately attached to it and to the mesometres by dense fibrous tag. The right tube and ovary are present the ovary being small and sclerotic. The left tube and ovary cannot be definitely located the latter being closely adherent to the posterior surface of the calcified mass. The external outline of this mass is somewhat suggestive of the position assumed by the fetus in utero. Upon removal and further study the outline of lower fetal extremities can be determined with accuracy. The

1

containing a semigelatinous substance through which a dense fibrous cord corresponding to the dural folds can be seen. (2) the upper extremities, which can be readily outlined (the humerus is present the metatarsal bones are evident, the musculature is represented by a soft brownish red material) (3) the folds of the small intestine and (4) the bony parts of the lower extremities, which can be outlined without difficulty. The mass measured 24 by 18 by 10 cm.

Its color to 16 mm into the lungs. It is impure from

GYNECOLOGY

UTERUS

Black, W. T. Retro-Displacements of the Uterus, with Suggestions Regarding Their Proper Treatment. *South M J* 922 to 360

In discussing the operations for the cure of retro-displacements the author brings out several important points: (1) that congenital retroversion producing no symptoms seldom requires operation. (2) that simple retroversion following a recent pregnancy can often be corrected by means of a properly fitting pessary, (3) that no one type of operation is suited to all conditions (4) that in round-ligament operations the pelvic diaphragm

Angeli, A. Chronic Uterine Inversion; A New

Angeli's case was that of a woman of 60 years. The uterine inversion was of seven months standing and was accompanied by complete prolapse

time by antiseptic irrigations

Operation was begun by a transverse incision on

in two parts, a little anteriorly so as not to injure the uterine artery. The uterus was opened for its

blood was very bright and the patient underwent an uneventful recovery

So far as the author is aware, this method of vaginal hysterectomy in strips has not been described previously. W. A. Mearns.

Jaris, J. Wedge-Shaped Resection of the Uterus (Kniiskernige Uterusexstirpation). *Rechnitz & Char* 272 to 9, 241.

In order to extend the limits of the conservative procedures for the removal of fibromyomata of the uterus, the author tried the Pfannenstiel wedge shaped resection of the uterus with certain modifications in suitable cases, a procedure devised for

two incisions extending from the lateral corners of the uterus toward the internal uterine os. After securing

newly formed uterus the two tubes and the round ligaments come in contact. In order to lengthen the uterine suture extraperitoneally and prevent adhesion to the intestines he unites both of the round ligaments on the anterior aspect of the uterus and the closely lying tubes on the posterior aspect, whereby the wound in the uterus is entirely covered. In three cases the results were good and menstruation was preserved. Knox (2)

Despina, H. The Indications, Technique, and Complications of Wertheim's Operation for Carcinoma of the Cervix of the Uterus (Indications, technique et complications de l'opération de Wertheim pour cancer du col utérin). *J de Char* 9 2, 275, 23

The author reports the cases of eighty-five patients treated for carcinoma of the uterus. Fifteen of them died immediately after the operation, sixteen died a short time afterwards from urinary tract complications, and forty-five are living. Twenty-one are living three years after the operation. The patients should be operated upon in the early stages of the disease before the bladder and rectum have become involved.

Before operation the patient is given a spinal anesthetic, the uterus and cervix are clamped, and the vagina is disinfected by antiseptic irrigations. The operative technique is described in detail. The spinal anesthesia is induced with stovaine, and maintained for fifty minutes. The ureters are carefully isolated and the uterus is completely removed. The pelvis is then thoroughly peritonized.

obliterated and evidently in some manner involved in the fibrous tags which cause adherence of the tubes.

Teepler B.: The Reinfusion of Blood in Twenty-Four Cases of Ruptured Extra Uterine Pregnancy (Ueber Blatreinfusion bei 24 Fällen von Gravidita extruterina rupta) *Deutsche und Reichsärztl. Z.* xlviii 92

The auto-reinfusion of blood which was used

combination of tissue erosion and tissue tension. This is influenced by the site of implantation of the ovum in the ampullary, isthmic, or interstitial portion of the tube.

8 Evidence either macroscopic or microscopic, of previous inflammation of the tubal wall is the exception rather than the rule in tubal mole and abortion.

These investigations led the author to perform

Broder C. H. Conservative Ovarian Surgery
Gynecologic State of J. 9 2, 2, 133

abdominal cavity was neither defibrinated nor treated with sodium citrate solution, but was mixed with equal parts of physiological salt solution. It was not necessary to remove the cannula tied into the subcutaneous veins of the arm. In some cases the effect of the auto-reinfusion of blood can hardly be distinguished from that of the administration of normal saline solution, but from observations based on a large number of cases it appears that reinfusion will sometimes save life when saline solution is no longer effective.

CASE (2)

Whitehouse B.: Salpingostomy versus Salpingectomy in the Treatment of Tubal Gestation.
J. Obst. & Gynec. Brit. Emp. 19 2, 12, 93

narrow basis of attachment to the tubal wall

2 The attached base is usually situated on the floor of the tube and is always at the proximal end of the mole.

or malignant disease.

Experiments have shown that the ovaries have other functions than the production of ova. They control menstruation and influence the development of the female sex.

sometimes bordering on insanity may result in the premature menopause. This influence on the nervous system is established through an internal secretion.

W. J. Mayo states that not only the ovary but menstruation has an endocrine function.

observed

6 The surface of the pedicle of a mole usually presents traces of tubal mucosa.

7 The deciding factor as to whether intra- or extra-tubal rupture will occur is the outcome of the

Cystic ovaries give pain especially during the menstrual period. Formerly the author punctured these cysts but subsequently they healed over and became refilled with fluid and the pain returned. In order to avoid the train of symptoms of an

incised, the clot removed, and the ovary sutured. In ectopic gestation it is rarely necessary to sacrifice the ovary.

When the ovary is involved by a solid growth it is usually so permeated that it must be removed. Malignancy requires radical excision. Prolapse of the ovary can be remedied by a small plastic operation. In operating on the ovary it is much better to handle it with the gloved hand than with instruments as the latter may traumatize the tissues. A fine round needle and plain catgut are used in suturing. Sutures placed close together with accurate coaptation of the edges prevent hemorrhage and subsequent adhesions.

I. E. BARTHOLOMEW, M.D.

| Kind | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 |
|------|------|------|------|------|------|------|
|------|------|------|------|------|------|------|

under 47 years. Of the 231 cases both ovaries and tubes were removed in 186, and in 178 of the 186 cases, embryos or fetuses

The school of conservative gynecology recommends the conservation of at least one ovary to ward off the artificial menopause with its impairment of health, including hot flashes and aunts. Radical gynecologists, on the other hand remove

leaving an organ which may necessitate a second

the artificial diapause very much more marked

often after the radical operation (91 as compared with 84 per cent). The temperament after either

complained of flushings after the radical operation and 73 per cent made this complaint after the conservative procedure.

Pain seemed to be more frequent after the conservative operation than after the radical (33 as compared with 83 per cent). Following the radical operation 6 per cent had more pain as compared with 15 per cent who suffered greater pain after the conservative procedure.

A very small percentage of patients complained of nervous symptoms after the operation but the percentage was larger after the conservative operation.

A larger percentage of patients had disturbances of their sexual relations after the radical than after the conservative operation, the proportion being 30 to 36 per cent.

There was a greater tendency to adiposity when both ovaries were removed.

of it are the with the radical operation in all but two exceptions, viz. the occurrence of fistulae and sexual disability. The difference between the figures is slight. The advantages of the radical procedure are that it is easier and quicker and therefore safer for the patient; it leaves a smoother pelvic floor with a linear scar running from side to side; there is less risk of the formation of adhesions; and the possibility of a pathologic change in the remaining ovary necessitating a second operation is avoided.

J. W. FARR, M.D.

EXTERNAL GENITALIA

Mueller H. Neurodermitis and Carcinoma of the
Otitis in a Young Girl (Neurodermatitis und
Klitoris-Karzinom bei jungen Mädchen) *Dermatol*
Ztschr 9: 111, 1912.

The case history is reported of a girl who was suffering with neurodermatitis. When the disease became chronic

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Engelkens, J. H. Primary Cancer of the Vagina
(Primärer Krebs der Scheide) *Verh. T. ges. N. Dtsch. 93* 1914, 27

Primary cancer of the vagina is considered rare but as the patient with a vaginal cancer usually seeks treatment late it is difficult to determine the point of origin of the condition.

The author rejects the theory that it arises merely

[7 4]

patient was a 17-year-old girl. A hymen, a small and a normal sized ovary and a rudimentary uterus were present but there was no vagina. The agnathoplasty undertaken was complicated because of difficulty in mobilizing the rectum and drawing it down. From the thymus above the external anal

vagina was gathered up in a button-hole suture. A good result was obtained.

By examination of the literature relative to this subject by research, and by communication by letter it has been ascertained that in the forty-seven cases operated upon by Schuler's method there was no death and only a single case in which a second operation was necessary. On the other hand, in forty-nine cases operated upon by the small intestine method there were ten deaths, a mortality of 20 per cent. *Summary (2)*

MISCELLANEOUS

Wynne, J. J. N. S. Urethral Stricture in the Female. *Surg. G. and G. Jour.* 1912, 2, 220, 203

Structure of the urethra is much less frequent in the female than in the male. Meehl states showed

changes a transposition of 3 after an incision to the

Breudling, O. Vaginoplasty (Beitrag zur Vaginoplastik) *Zentralbl. f. Gynäk.* 1914, 8

(some resulting from it) in inflammatory injuries erosion caused by strong caustics, etc. Inflammatory structures follow gonorrhea, syphilis, tuberculous, chancroids, and diphtheria. *Conor*

should be left in place for ten to fifteen minutes
T

I
over a period of several months. Some cases have
been treated by rapid dilatation under general
anesthesia

Internal and external urethrotomies and resec
t

plete examination

hydro-ureters and hydronephrosis ends in pyelo-
nephrosis

In a series of forty-two cases, cure was reported in
twenty-eight and improvement or relief of symptoms
in ten. In four there was no benefit

and the largest instrument passed at any sitting

CLAYTON F. ANDERSON, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Nevak, L.: Uterine Pregnancy *J Am M Ass*
1937 *LXXV*, 643

1998

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was confirmed when the abdomen was opened.

The explanation of the discoloration of the umbilicus in cases of extensive intraperitoneal

Browls The Treatment of Placenta Praevia by Abdominal Hysterotomy (A propos de traitement du placenta praevia par l'hystérotomie abdominale) *Gynaecol et Obstet* 1921 v. 20

In Belgium, placenta previa has been treated surgically for some time, and since 1913 Fraupont has treated certain cases of low insertion of the placenta by abdominal hysterotomy which prevents haemorrhage and foetal asphyxia and the risk of infection of the mother associated with obstetrical manoeuvres. Not all cases of low insertion call for surgical treatment but there are those in which the older methods are difficult and their results are doubtful these are cases in which as alarming haemorrhage occurs, the cervix is still long and closed, and exploration demonstrates a

It may become a real aid in the diagnosis of Cullen's sign in such cases will be of considerable value in the diagnosis. C. P. Davis, M.D.

Wallis, R. L. M. and Williams, H. G. E.: An Experimental Investigation of the Corpus Luteum in Its Relation to the Toxicities of Pregnancy. *Lancet* 1911 vol. 784

Because of the great divergence of opinion regarding the etiology of eclampsia and the fact that no one theory explains all the findings the authors experimented on rabbits with fresh extracts from

and surgical treatment before or at the beginning of labor must be based. It is essential that the woman be cared for in a properly equipped clinic and be kept under observation as it is only under such conditions that the indications for one or the other obstet — if
the m — for
this f — of
hysterectomy for the child

Of eleven women upon whom the author performed cesarean section, six were primiparae four were operated upon before the onset of labor and seven were operated upon just at the beginning of

Vogt, W H The Interruption of Pregnancy at Term with a Consideration of the Methods of Estimating the Maturity of the Fetus in Utero. *South Af J* 9 2, p 290

... attempted to make labor

opos lutem and many of the clinical manifesta-
tions of pregnancy and form the basis for a new test
of gestation R. E. CRAMER, M.D.

increased.
According
starvation
rupture of
cholesterol being increased.

Vent found that in labors lasting two hours the incidence of asphyxia was 18.35 per cent, and in those lasting four hours it was 49.65 per cent.

Obstetricians realize that it is of little value to know that the pelvis of a woman is normal in all of its measurements if the size of the child is unknown.

Von Witzel claims that over 70 per cent of infants weighing more than 8 lbs are over mature and that the continued overgrowth of the fetus increases the danger to both the mother and the child.

It is the opinion of the writer that the force of the

such cases the placenta shows more or less infarction which apparently is due to attempted connective tissue repair of the end vessels following the irritation produced by the toxins.

Abruptio placentae or placental apoplexy shows

also in all cases of the
endothelial type

If the disturbance is only moderate the treat

in the uterus the

Corten F G Acute Pulmonary Edema in Labor
Surg Gynec & Obst 93 2227 517

Among the causes of acute pulmonary edema in the absence of renal, hepatic, cardiac and infectious disease or drug intoxication, Albert cites "purely

harmful

The Perret method consists of measuring the foetal head from the occiput to the frontal bone. To obtain the bi-parietal measurements Perret deducts 2.5 cm from the occipito-frontal diameter. This measurement cannot be obtained if the head is fixed in the inlet.

C H Davis, M D

In the treatment it is necessary to take only two cases into consideration intonation and heart trouble

Cases of edema due to an intoxication should

LABOR AND ITS COMPLICATIONS

Williamson, A. C. The Premature Separation of the Normally Implanted Placenta. (Am J Obst & Gynec 9 121, 283)

The premature separation of the normally implanted placenta is more frequent than is generally believed.

Complete separation of the placenta is a grave condition calling for skill and good judgment on the part of the obstetrician.

Etiologically classified there seem to be two main groups of cases (1) a small indefinite group which may be called the "traumatic group" and (2) the "toxic group," so named because the patient usually shows moderate or severe toxemia.

Mild toxemia may act slowly and cause partial or almost entire separation of the placenta. In

Obst

9 2227, 93

was as follows: a second or third cesarean section in forty-five cases; vaginal delivery in seventeen cases; and rupture of the old cesarean scar in one case.

The author reaches the following conclusions:

1. The weak cesarean scar may be due to a single factor or to a combination of factors, the most important of which is infection.

2. An afebrile puerperium does not give absolute assurance of perfect wound healing.

3. Perfection of the technique of suturing the uterine incision will undoubtedly lessen the incidence of weak scars.

4. Chronic catgut has proved to be a satisfactory suture material.

5. If possible the uterine wound should not be closed until firm contraction of the musculature has occurred.

6. As a rule fetal elements do not invade the uterine scar.

7. Adhesions following cesarean section are common. They are not necessarily due to coexisting infection and may not give rise to serious complications at subsequent operations.

8. The ductum, once a cesarean, always a cesarean, cannot be accepted without reservation.

9. A patient who has once been subjected to a cesarean section should enter the hospital several weeks prior to the expected date of confinement so that she may have the benefit of immediate operation if rupture occurs.

F. L. CORVELL, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Doerderlein A. The Treatment of Puerperal Fever (Ueber die Behandlung des Puerperalfiebers). *Deutsche med. W. dschr.* 1911, 37:11.

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record of the temperature during the puerperium

of iodine, mercury or carbolic acid or their preparations

introduced into the uterus
ference such as curettage is to be avoided

author uses colloid and protein preparations

hysterectomy are contra-indicated in cases of streptococcus infection, but in other cases may be done with good results. In thrombophlebitis the ligation of veins may save life, but the correct

The posterior vault of the vagina is opened in a

Courbin J. The Indications for Immediate Hysterectomy in Puerperal Infection (Les indications de l'hystérectomie d'urgence dans l'infection puerpérale). *Rev. franç. de gynéc. et d'obst.* 9, 57:2, 190.

The indications for hysterectomy in puerperal infections are reduced by the author to two types of cases:

PERIOD OF GERM INOCULATION

— — — — —

Deibet's sign

Thrombophlebitis of the broad ligament is sometimes observed as a complication of severe leucos.

to the septic parenchymatous metritis and does not cause toxic fœries, being masked by the general picture of severe infection. Because of the considerable congestion and oedema due to the condition ligation of the hypogastric vein is very difficult.

W. A. BARNES

NEW BORN

Reed, C. B.: The Post Mature Child. *South M J* 93: 35, 1946

Maturity may be defined provisionally as that in which the child is able to sustain its weight on its own feet.

overgrowth through detention in the uterus after it has become mature. Overgrowth of the child subjects the mother to prolonged labor and external laceration of the soft parts. The child on the other hand, is endangered by the relative shrinkage in the blood supply and exposed to strangulation at the vulva and prolonged cerebral compression. The unusual size of the child does not mean a better inheritance as the extra weight is rapidly lost.

The author does not claim that all babies of 9 lbs. or more are post mature but states that ac-

postpartum figures tallied exactly with the antepartum estimate in 37 per cent of the cases.

McDonald found that a mature fœtus requires a uterus whose fundus extends 35 cm. above the upper border of the symphysis. This measurement is taken with a tape along the convexity of the abdomen to a point even with but not extending down into the depression above the fundus. To determine the month of pregnancy McDonald divides the height of the fundus obtained in centimeters by 35.

The diameters of the fetal head are obtained by Perret's manoeuvre. The occipito-frontal is measured as it lies more or less transversely across the inlet, without any allowance for the thickness of the abdominal walls. If the occipito-frontal measures 12 cm. for instance, 2.5 cm. are deducted to obtain the bi-parietal diameter from 12.5 cm. 2.5 cm. are deducted from 12.5 cm. 2 cm. and from 10.0 to 11.0 cm. 1.5 cm.

The tests are fallacious and unsatisfactory in cases of hydranion and extreme obesity but on the other hand twins and lightening can often be recognized by means of the tape. (H. Davis, M.D.)

MISCELLANEOUS

Williams, J. T.: Normal Variations in the Type of the Female Pelvis and Their Obstetrical Significance. *Am J Obst & Gynec* 9: 2, 1945

There are two distinct and easily recognizable types of normal female pelvis which for purposes of designation may be called the "feminine" and the "muscular" types.

The first or "feminine" type is characterized by a

Although both these types must be considered normal, the "feminine" type is much more favorable for labor. In the "muscular type" premature rupture of the membranes occurs in nearly 40 per cent and posterior positions of the occiput are more common. In spite of the larger external measurements of the pelvis of the muscular type cesarean section is necessary in a greater percentage of the cases than in the feminine type.

The diagnosis of fetal maturity will rest upon measurements made by the McDonald Perret and Ahlfeld methods all highly dependable.

To determine the length of the babe by Ahlfeld's procedure one tip of the pelvimeter is placed upon the upper pole of the child and the other upon the upper border of the symphysis. From the reading thus obtained 3 cm. are deducted to allow for the thickness of the abdominal wall. The result is then multiplied by 2. In the author's experience the

GENITO-URINARY SURGERY

ADRENAL, KIDNEY AND URETER

Petrén, G.
Renal
kyste
(cystic)

vessel. Operation revealed the cause of the dilatation to be a vascular cord consisting of an accessory artery and an accessory vein which crossed the

At operation the renal pelvis was found to be

to an accessory vascular cord consisting of two

of the torn vessel to the ureter and pelvis of the kidney. Petrén regarded the abnormal vessel as the cause of the dilatation of the pelvis of the kidney. The patient recovered.

The second case was that of a 6-year-old girl who, nine days before her entrance into the hospital, suffered an acute attack of pain in the right side of the abdomen associated with high fever and sensitive resistance to the right of the umbilicus.

recurred. Fourteen months after the operation, the pelvis of the right kidney was found to be still considerably enlarged and the X-ray revealed a small kidney stone. The author is of the opinion

relations of accessory renal vessels and reviews

dilatation

The relationship between abnormal renal vessels and hydronephrosis was long a disputed question

of hydronephrosis due to accessory renal vessels is made or this condition is merely suspected, exploratory nephrotomy is indicated. Dravins (2)

pelvis into which 45 c cm. of a 5 per cent solution of potassium iodide could be injected without causing discomfort. The probable diagnosis was early hydronephrosis based upon an abnormal renal

of hydronephrosis due to accessory renal vessels is made or this condition is merely suspected, exploratory nephrotomy is indicated. Dravins (2)

Fests, O. C.: Pyelonephritis—A Critical Review of 100 Cases. *California State J M* 1932 xx, 3

The author states that pyelonephritis occurs more frequently in females than in males because of pregnancy and gynecological operations. Gynecological procedures should be preceded by the administration of urinary antiseptics, and this should

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Pyelonephritis is most often manifested by bladder disturbances alone, but may be accompanied by abdominal pain and when associated with acute infection may be extremely difficult to differentiate from urinary infection associated with appendicitis. Not all cases show pus in the urine. Direct slide smears are of more value than cultures. Certain organisms infecting the urinary tract other than the tubercle bacillus will not grow on ordinary media. It is not the function of the kidney to excrete bacteria, their presence in the urine is evidence of a pathologic process in the kidney. Chronic nephritis associated with infection of the kidney is not uncommon. The presence of large amounts of albumin in

urinary stains is absent may have as their cause gastro-intestinal stress. Pyelograms should be made in cases of persistent pyelonephritis to demonstrate the absence or presence of ureteral structure.

LOUIS GOODE, M D

Buenger L. The Non-Operative Treatment of Ureteral Calculi. *Med Rev* 92 72, 5

Non-operative treatment for the removal of ureteral calculi should be begun as soon as the diagnosis is made. Cystoscopic intervention is advisable in almost all cases of ureteral stone within a short period after the stone has found lodgment in the ureter. Buenger does not accept the dictum that

early attempt at cystoscopic removal might have hastened

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cause kidney or lumbar pain produced by ureteral stone is due not to the damage or trauma in the

smallest stones may produce complete obstruction. (3) by the passage of one or more ureteral catheters or bougies drainage may be established and the progress of a stone through the ureter may be hastened. (4) even large stones 1 cm or more in diameter may be removed by the use of catheters and bougies. (5) the introduction of ureteral catheters prevents complications. (6) the emptying of the distended renal pelvis relieves the symptoms immediately.

Complications which may develop if a stone is allowed to remain in the ureter are (1) marked hydronephrosis with secondary infection (2) infection of the non-hydronephrotic kidney (3) rupture of the hydronephrosis or pyonephrosis (4) perinephritic abscesses (5) dilatation of the ureter (6) sclerosis and stricture of the ureter (7) secondary stone formation in a dilated ureter or the ureter above a stricture (8) peri-ureteritis and peri-ureteral abscess with or without ureteral perforation.

For the removal of stones in the lower pelvic ureter Buenger finds necessary a cystoscope, ordinary ureteral catheters, Garceau catheters, and ordinary metal-tipped bougies. Manipulation is carried on with an olive-tipped catheter until the obstruction is overcome. The retained urine having been drawn off by the first catheter the latter is allowed to remain for an hour before a second catheter is passed. A solution of silver nitrate may be introduced through the permanent catheter to combat infection. If possible a second attempt to dilate the ureter and remove the stone should be made after an interval of one week. Catheters of varying size or two catheters of size No. 6 may be used. When it is impossible to pass the second catheter olive oil or glycerine may be

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The author describes a chemical process whereby the catheters may become agglutinated to the stone. He is of the opinion, however, that the downward course of the stone during manipulation is due chiefly to friction. By the method described the stone may be entirely removed from the ureter moved an inch or more or broken into smaller pieces. When infection is present, operation may be necessary at once, but Buenger believes that if the ureter is repeatedly drained and treated with silver nitrate the infection will be overcome. When

In cases of stone in the intramural portion of the ureter Boerger passes two catheters and attempts to make them cross in the ureter and engage the ureteral stone simultaneously. After the intro-

UNUSUAL

The removal of a calculus in the lumbar ureter

of the inguine free in the rectum

A rectal tube was used for five days, at the end of which time the ureteral catheters were removed

he uses special intravesical procedures. The instruments for this operation are a punch forceps and scissors to incise the upper lip of the ureter.

CLAUDE J. THOMAS, M.D.

BLADDER, URETHRA, AND PENIS

Grant, W. W.: Extrophy of the Bladder. *South M J* 1924, 27, 297.

The author presents a case of extrophy of the

transplant was partially closed at the top by undermining the skin (the deep and lower part of the

bowel and a rubber urinary

fourth of six children, is the last of the series. The patient was 5 ft. 7 in. in height. Before operation he weighed 140 lbs. and today weighs 150 lbs. Since the age of 7 years he

was removed for as little work as the it is p the

rectum comparatively clean and he regards the sigmoid as the chief fecal cloaca. Dividing the ureters before they enter the bladder and transplanting them into the sigmoid intraperitoneally

over all others. The Harrison operation in which the urinary current is brought out in the back or loins improves the patient's condition little as the chances of infection are no better and the area to be kept dressed is in a location not as readily accessible to the patient as the pubic region.

The mortality of the Bergenhem extraperitoneal operation is 15 per cent while that of the intraperitoneal operation is 38 per cent. Following the use of the old methods 50 per cent of the patients died before they reached their tenth year of age and

incision is the operation of choice.

2. The two-stage operation is neither necessary nor desirable.

3. The preservation of the blood supply and the ureteral valve action in transplantation of the ureters and the base of the bladder intact is of distinct value for the immediate success of the operation and the prevention of ascending infection. It is therefore the method of choice.

4. In advanced malignancy and tuberculosis of the bladder the Coffey Mayo operation is the

refer

Urinary control is essential to any successful operation upon the bladder and is effectively and satisfactorily obtained in the operation described.

8. The consensus of urological opinion is against operation for this condition before the fifth year of age.

C. D. HOLLAND, M.D.

Day R. V. Foreign Bodies in the Bladder. *J. Urol.* 9, 235.

The author reviews the various intravesical methods devised to remove foreign bodies from the bladder. The

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unusual forceps he considers too frail in most instances. Instead he employs an alligator forceps through a direct vision cystoscope.

H. C. HAMIL, M.D.

Kretschmer H. L. Demonstration of Bladder Diverticula. *Surg. G. & Obst.* 1922, vol. 538.

Cystoscopy gives information regarding the number and location of diverticula but fails to reveal their size. Cystography used as an aid to cystoscopy may not give the desired information because of the position of the diverticulum. The passage of shadowgraph catheters into the diverticulum followed by the injection of an opaque medium gives more accurate findings. When the latter method is combined with air cystography still sharper definition is obtained.

FRANK HENMAN, M.D.

Kreutzmann, H. A. R. The Treatment of Hunner's Ulcer of the Bladder by Fulguration. *California Stat. J. M.* 9, 2, 118.

After discussing the etiology pathology and symptoms of Hunner's ulcer the author states that while it is generally agreed that the only treatment is excision of the diseased portion of the bladder less dangerous procedures should be given a fair trial before operation is attempted.

The patient whose case is reported was a woman 46 years of age. In 1914 she was operated upon for tumor but no tumor was found, and a second operation was performed for fibroid of the uterus.

As usually, the mode of diagnosis of Hunner's ulcer. Fulguration of the bleeding areas in 1920 was followed by entire disappearance of the symptoms within one month and eight months later the patient

attempted
LORD CROSS, M.D.

Young, H. M. The Use of the High Frequency Current in the Treatment of Lesions of the Deep Urethra. *J. Urol.* 9.

The author

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This article contains an interesting and instructive series of drawings which illustrate the method of using the fulgurating electrode in many of the lesions of the posterior urethra.
B. F. ROLLER, M.D.

Wolbarsht A. L. Urethroscopic Findings in Functional Disorders of the Genito-Urinary Tract. *J. Urol.* 19, 300.

Wolbarsht studied fifty cases in an attempt to find a common factor or to determine whether or not certain clinical phenomena of the genito-urinary tract are associated with well-defined patho-

twenty-one were examined for impotence and premature ejaculation, ten for pain, eight for sterility six for urinary disorders and five for excessive

every case of functional disturbance the verumontanum and posterior urethra are both involved, but chiefly the urethra.

Of the twenty-one cases of premature ejaculation and impotence, practically all showed marked in-

the verumontanum or the posterior urethra or both were seriously involved. In the six cases of frequency of micturition the urine was hyperacid and the verumontanum or posterior urethra showed inflammation or cysts. In the five cases of excessive

no spermatogenesis for a long time, there was an ectasis of the head of the epididymus. From this fact the author concludes that the testicle has some other external secretion than spermatozoa. Because of such of

a kinking of the ureter where it crossed the vas deferens. The urinary sepsis was not diagnosed

by prostatectomy

(2)

Legros, F. The New Conception of Prostatic Disease (La nouvelle conception de la enfermedad prostatica). *Arch de med exp y circeol* 1922 44, 5.

In prostatic disease the volume of the adenoma is

GENITAL ORGANS

De Vries, T. J.: The Results of Ligation of the Vas Deferens (Ueber Folgen von Vas-deferens-U. erbindung). *Zeitschr f. Urolog u. Gynak* 19 1911, 266.

De Vries discusses the effect of ligation of the vas deferens upon the testicles and the prostate

case in a large series of cases one finds tumors ranging from 1 mm to 15 mm as follows

the vas deferens. This is the first autopsy post

From deep in the prostatic tissue two small adeno-

had complete retention. Examination showed a distended bladder. Digital examination revealed a very small prostate. At operation 4 gm. of prostatic tissue were removed. Microscopic examination showed this to consist of a number of small adenomata.

| Group | Cases in which no tumor was found |
|-----------|-----------------------------------|
| Group 1 | 1 |
| Group 2 | 1 |
| Group 3 | 1 |
| Group 4 | 1 |
| Group 5 | 1 |
| Group 6 | 1 |
| Group 7 | 1 |
| Group 8 | 1 |
| Group 9 | 1 |
| Group 10 | 1 |
| Group 11 | 1 |
| Group 12 | 1 |
| Group 13 | 1 |
| Group 14 | 1 |
| Group 15 | 1 |
| Group 16 | 1 |
| Group 17 | 1 |
| Group 18 | 1 |
| Group 19 | 1 |
| Group 20 | 1 |
| Group 21 | 1 |
| Group 22 | 1 |
| Group 23 | 1 |
| Group 24 | 1 |
| Group 25 | 1 |
| Group 26 | 1 |
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operation a small lobule was found on the posterior aspect of the neck of the bladder. Tearing through the urethra, about 3 gm. of cervical tissue were removed with great difficulty. On macroscopic examination this tissue proved to be of fibromuscular origin. The patient, who had suffered from dysuria for twenty years, is able to empty his bladder in two seconds.

These three groups of cases show the variations from the enlarged prostate with definite adenomata to the "prostatic without prostate," all with similar symptoms.

The author believes that in prostatic disease the neck of the bladder becomes rigid and loses its sensibility and elasticity, in other words it loses the slakty to open itself. Hence the abnormal macton

retention is due to its condition rather than to any other mechanical obstruction which may be present.

The mechanism of incomplete obstruction is still unknown.

Complete retention may be transitory or permanent. It is transitory in cases in which the changes at the neck are not sufficient to excite the inhibition reflex steadily. P. R. CANNON, M.D.

Young, J. H. and J. H. Young
Genes
with
933
Young, J. H. and J. H. Young

verted Y incision through the capsule the prostate was removed in one piece. Later by means of a double-bladed tractor and bilateral incisions, the lateral and middle lobes were removed. The ejaculatory ducts and urethra were preserved.

In 450 cases treated by this method there were only seventeen deaths. There was no incontinence and injury to the rectum was rare. One of the deaths was due to vesical hemorrhage. In eight fatal cases autopsy showed severe renal lesions. In three others, in which autopsy was not performed, there were renal symptoms.

Young adopted the inverted Y incision in the capsule because occasionally small lobules were missed in the bilateral incisions and because of the technical difficulty in removing the three lobes separately. The incision into the urethra exposed the floor verumontanum, and ejaculatory ducts. The incisions having been carried as far back as each side of the urethra as the middle lobe, the urethra was then divided. The prostate was then removed in one piece. A study of these cases showed that healing was not so rapid, and in a few a stricture developed.

no more of

work by me

to the verumontanum and ducts on the left side. The prostatic urethra was widely opened. The mucous membrane along the inner surface of the right lobe was opened and the lateral lobes were freed with a blunt dissector and the index finger. The ejaculatory ducts and verumontanum being protected with the index finger the mucous membrane covering the middle lobe was incised and the lobe freed. Enucleation was then completed and the prostate removed in one piece with the lobes free from mucous membrane. If a subregional lobe remained, it was excised, if necessary with a curette. The tractor being removed and the index finger in the bladder bringing it into view.

The sphincter is usually intact and the mucous membrane extends from the vesical neck into the prostatic cavity.

In some of the cases in which the prostate is fibrous and adherent the bilateral incision is more satisfactory.

In 66 consecutive cases treated during the past three years there were no deaths. Preliminary preparation and better technique are responsible for this improvement.

In conclusion two points are brought out:

1. Complete removal of the entire adenomatous prostate can be accomplished with complete preservation of important anatomical structures.

Visual inspection, the arrest of haemorrhage by ligation or packing dependent drainage aimed

iii Use of a single-bladed tractor not as in

ance of sepsis, the prevention of distention of the bowels, and a decrease in the mortality are favored by the lower operation. CLAUDE D. PICKRELL, M.D.

Hinman, F.: Suprapubic Vermes Perineal Prostatectomy. *California State J. M.* 912 XL, 13

cent)

In eighty-one consecutive unselected cases operated upon by the perineal route by Hinman there were no deaths and the results were successful. Recto-urethral fistula, perineal fistula and incontinence have been absent in all of his later cases and in none were troublesome. In the longest period since operation, five years, there has been no

of the operator rather than to the operation. Properly performed, Young's operation is an ideal surgical procedure. It presents, however, two technical difficulties—the anatomical approach and the glandular evulsions. Errors in the first lead to injuries of the rectum and external sphincter while errors in the second cause structural defects

MISCELLANEOUS

Holtenbeitz, H. F., and Millikin, F.: The Bacteriology of the Normal Infant's Urine. *Am. J. Dis. Child.* 912, 1321, 309

It has been rather generally accepted that the

questic
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streptococcus lacticus 15 times, sixteen times with
bacillus lactis aerogenes. Occasionally a single c

amination yielded a sterile urine but on repetition bacteria were found.

The infants from whom the urine was taken for

ence

3 Cultures in solid media positive cultures in

and one female

4 All cultures positive. This group consisted of twenty-six infants, twelve females and fourteen

the lactus

The error that creeps in through the constant danger of contamination even when all precautions are taken is such that the evidence obtained is always open to criticism. The authors state that the

masses of streptococci shown in the illustrations of Langer and Soldin as coming from the kidney must have remained in the urinary tract for a long time

that they were washed in from the urethra and urethral opening and were essentially contaminations

In conclusion it is stated that the urine of infants is sterile on culture in from one-third to one-half of the cases. The streptococcus lacticus is found in the urine of infants only exceptionally. The chances of contamination are so great that the presence of organisms in the urine does not prove without further control that they came from the kidney.

Beitfeld, W. T. The Anatomy of Gonorrhea in the Male. Principles of Treatment. *J. Am. Med. Ass.* 9, 1913, 290.

There are two types of defense against the gonococcus: the antimicrobial and the antitoxic. When invaded by the gonococcus the urethra exhibits the

first type and the seminal duct the second. The futility of antitoxin defense against gonococci in the vesicles is seen in gonorrheal epididymitis. The antitoxin effect on infection in the vesicles is seen in a decrease of the urethral discharge at the height of the epididymal swelling, but when the swelling subsides, pus and gonococci again appear.

Walls of two layers of cells, there is no flushing with urine and no drainage, and the vesicles are closed sacs emptied only by their own contractions. On the other hand the vesicles are admirably adapted for local medication. During the last nine years the author has injected acutely infected vesicles through vas puncture in eighty-three cases, continuing the usual treatment of the urethra and prostate. In none of these has epididymitis or arthritis developed and in only four have gonococci been found after a month's follow-up treatment of the urethra. In sixteen every sign of the disease vanished fourteen days after the injection.

The physician inexperienced in the procedure should perform the original open operation and thus avoid the common mistake of injecting the sheath of the vas instead of the lumen. In the treatment of acute gonorrhea the vesicles are injected not as a routine measure but only when vesicular infection is demonstrated by the finger in the rectum.

FRANK HIRSHMAN, M. D.

SURGERY OF THE EYE AND EAR

BYE

Payne, S. M.: Causes of the Loss of Vitreous Humor, Protrusion of the Iris, and Subsequent Membrane Formation in Cataract Extractions. *N. Y. J. Med.* 1922, CIV 466.

The next to do is to check the pressure down on the top

3. Usually during manipulation the Buller's forceps are passed from one hand to another the hands thus manipulating the same forceps at one time. As a result of this manipulation too much

counterpressure too deep. This makes the section more difficult to cut, causes greater trauma to the iris and produces greater pressure upon the eye thus endangering the ligament.

4. The patient is made to look down after the section is made; this causes the wound to gap, and if there is irritation from too wide separation of the lids or clumsy manipulation of the cystotome the ligament is apt to be ruptured.

5. The operator's eye is taken from the operated eye frequently to change instruments, etc.

6. Pressure on the lower part of the cornea is incorrectly made when the lens is removed.

operation.

THOMAS D. ALLEN, M.D.

Moutier, F. and Gouelin, A.: The Bulbar Syndrome in Acute Intoxication Due to Intra-Orbital Injections of Cocaine (Le syndrome bulbaire dans l'intoxication aigue par injections intra-orbitales de cocaine). *Presse med. Par.* 9 3 22, 315.

Cocaine has three principal effects: analgesic, The heart dis-

more
first
ge is

increased, and when very strong dosage is given the heart is arrested in systole. Under strong dosage respiration increases in frequency and decreases in amplitude.

The action of cocaine on the nerve centers is believed by some to be similar to that of chloroform and ether. Strong dosage causes a bulbar intoxication.

delirium, agitation, and loquacity. The patient

pear after a day or two.

The author reports two clinical cases, the first that of a man of 38 years who was given an orbital

cardia persisted for several days.

The therapeutic agents to be employed in cocaine intoxication are oxygen and ether. The action of oxygen is clearly inferior to that of ether which, though of brief duration, is extremely rapid and complete. The dose should be repeated until 30 to 35 c cm is reached as in the second case cited by the authors. In this case the condition had been present for fifteen hours and the patient appeared as if on the point of death but recovery began after copious vomiting. W. A. BERRYMAN.

HARRISON, N. B. and MacDONALD, F.: Detachment of the Retina Probably Due to Exposure to Light During an Eclipse. *Br. M. J.* 93 2, 637.

The author's patient, a professional man, aged 54, viewed the eclipse on April 8, 1912, with the right eye, through a piece of cinematograph film and also through a tunnel formed by his hand. Half an hour later he was sparks with that

found which, hanging down, obscured the disc and macula.

The patient refused operation and as the physicians were uncertain of the condition of the macula,

time this became steadily smaller and there appeared ghastly lines radiating from it to the remains of the detachment above. This sequence of events seemed to point to severe trauma of the macular region consequent on exposure to sunlight as the cause of the detachment. THOMAS D. ALLRY, M.D.

Copper, H.: Lesions of the Optic Nerve Consecutive to Endonasal Affections (Note sur les lésions des nerfs optiques consécutives à des affections endonasales). *Bull. Acad. roy. de méd. de Belg.* 1922 11, 53 11

According to the statistics of recent years, an endonasal condition is the causative factor in only 3 or 4 per cent of cases of retrobulbar neuritis, but as about 40 per cent of the cases are claimed as of

EAR

Rossud, M. and Arbeitler R.: The Frequency and Severity of Otitis and Suppurations of the Petrous Bone in Nurlings (Fréquence et gravité des otites et des suppurations du rocher chez les nourissons). *Bull. Acad. de méd. Par.* 1922 LXXXVI, 205

When a diagnosis of otitis is delayed until pus is discharged from the auditory canal the disease is recognized in only about 8 per cent of nurlings in a children's clinic but when detailed and repeated examinations are made and when tympanic punctures are carried out in all doubtful cases the condition is recognized more frequently. The authors found seventy-three cases of otitis in the examination of 103 nurlings and in every instance it was of a severe type. In the out-patient department of the hospital thirty-six cases of otitis were observed in 112 nurlings brought for various causes. The difference between the hospitalized and out-patient percentages is due to the fact that the children hospitalized were those in whom the disease was advanced. Of the twenty-nine admitted to the hospital in whom otitis was not found, twenty left the hospital in excellent condition and nine in fair condition but of the seventy-three who had otitis fifty-nine died and only fourteen were cured.

Otitis is extremely frequent in children and very often severe. Its frequency and gravity in nurlings places it in the front rank of children's diseases. Two deductions may be drawn. The first is that

are infected

has not been directed is compression of the optic nerve by the ophthalmic artery. W. A. REEVES

H. A. BRIDGES

SURGERY OF THE NOSE, THROAT, AND MOUTH

THROAT

Jackson, C. Ventriculocardectomy: A New Operation for the Cure of Globular Paralytic Laryngeal Stenosis. *Arch Surg* 9 1 57

One of the results of globular is a bilateral abductor laryngeal paralysis which results in dyspnea necessitating a tracheotomy.

In order to establish respiration through the larynx and enable the patient to discard the tracheotomy tube the author has devised the operation of

from cicatricial stenosis.

Recent onset of the bilateral abductor paralysis is a contra-indication because until a year has elapsed one cannot be sure that some degree of mobility will not reappear. If a low tracheotomy has been performed for the dyspnea resulting from the abductor paralysis, nothing will be lost by delay. If a faulty tracheotomy has been performed, a low tracheotomy should be done and the upper stoma allowed to close.

In the author's cases no anesthetic was given to children; in the cases of adults cocaine was painted on with a swab and $\frac{1}{4}$ gr of morphine was given an hour before the operation.

The larynx is exposed with the direct laryngoscope and through the latter the punch forceps

injured.

No after-treatment is necessary. One side is

from this to guard a proper cork on an emery

the cannula can be worn night and day. The cork is worn in the outer cannula and for convenience has a braided silk tether to prevent loss. With proper cannula there is sufficient room around it in

day for a month.

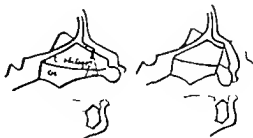
Seven case reports are added.

O. M. Rott, M.D.

MOUTH

Veau, V., and Leersbach, J. The Treatment of Complex Bilateral Harelip (Traitement de bec de lièvre bilatéral complexe). *J. de chir.* 422 271 13

In the treatment of harelip the authors employ Jalaguier's technique but they have made two modifications, viz: section of the osseous pedicle of the intermaxillary bone and preservation of the mucosa of the tubercle. The Jalaguier operation consists of a first stage in which the tubercle is



it is better to use what is known to fix a test trade as pure cord of suitable diameter and



Fig. 1. Outline of a correct incision of the pedicle of the maxillary bone to show that after this reduction the arch of the nose is not changed.

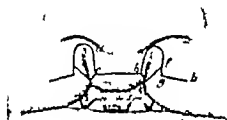


Fig. 2. Reconstruction of the lip. Tracing of incisions.

authors opinion, coneiform section as done by Blandin and Girault is to be condemned because it ruptures the arch of the osseous which forms the

New G. B. and Figl, F. A. Actinomycosis of the Tongue. *Am J U S* 9, 1910, 57

Of 127 patients with actinomycosis examined at the Mayo Clinic from January 1910 to January 1921 the disease occurred in the head and neck in sixty-three and in three of these it occurred primarily in the tongue.

Boettinger (1877) recognized actinomycosis as a pathologic entity. Hartz named the organism the "ray fungus" or actinomycetes. Israel, in 1878 recognized the organism as the cause of the disease in man.

Actinomycosis rarely occurs primarily in the tongue although this organ is undoubtedly more often involved than is indicated by the authors

0.7 per cent of the entire number.

Actinomycosis is common among cattle and hogs. Claus estimates the incidence of the condition of the tongue in cattle as 29 per cent of all actinomycotic infections and Leclerc gives it as 18 per cent. Von Hollandt notes that 5 per cent of the tongues of slaughtered hogs show definite encapsulated actinomycotic nodules. It seems logical to attribute the more frequent occurrence of the infection in animals as compared with man to the fact that animals come into more direct contact with the

healthy persons and the tongue is exposed to injury by such teeth.

Thirty-five cases of primary actinomycosis of the tongue were collected from the literature. Twenty-seven were those of males and ten those of females. In one case report no data were given. Actinomycosis occurs as a rule in adults. Only one case has been observed in which it was found in a person under 30 years of age.

The condition is more common in farmers and

tenor half of the tongue often near the tip. The condition may be acute in onset with severe pain, throbbing, local tenderness, general malaise and elevation of the temperature. It may develop insidiously during the course of several months or even three or four years. Enlargement of the regional lymph nodes has been observed, but in these only staphylococci, never actinomycetes have been found.

The diagnosis must be based on the clinical picture and confirmed by microscopic examination. It is best to excise the entire nodule for diagnosis. Grossly the lesion must be distinguished from tertiary syphilis, tuberculosis, epithelioma, inflammatory cyst, and fibroma.

The nodule often becomes infected secondarily with abscess formation. The overlying mucous membrane may appear normal, yellowish or elevated and tense. It rarely ulcerates.

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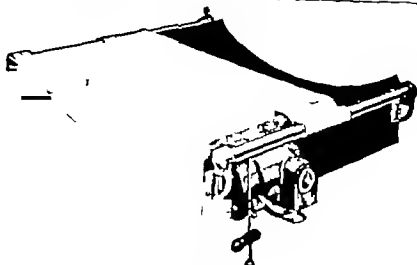
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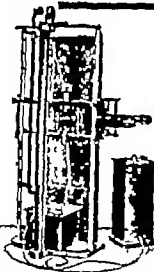
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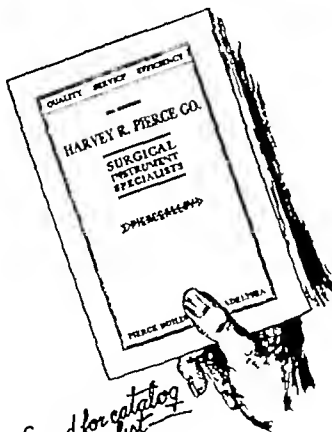
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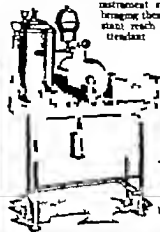


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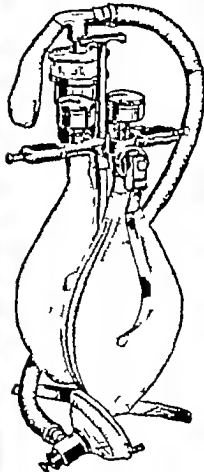
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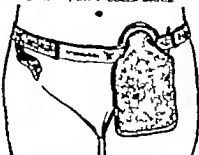


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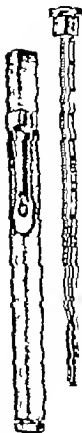
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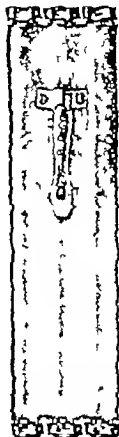
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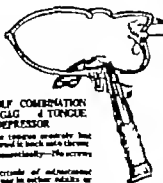
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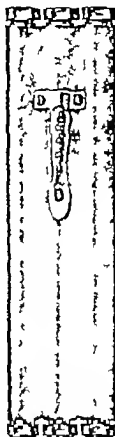
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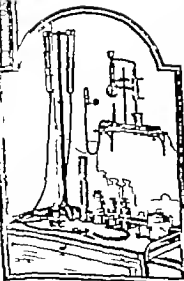
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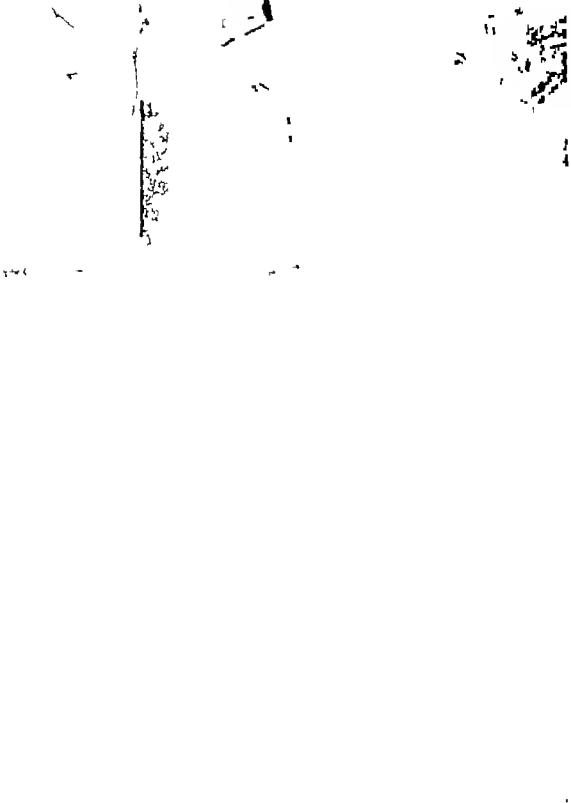


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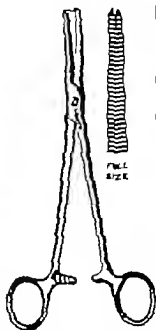
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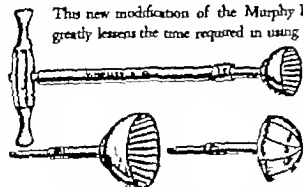
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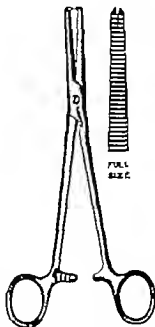
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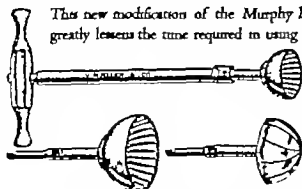
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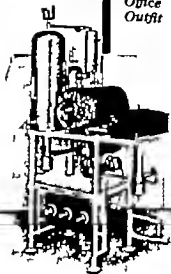
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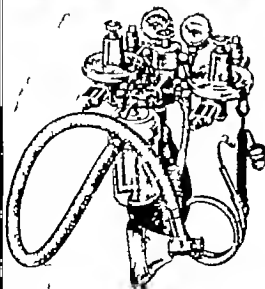
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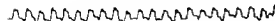
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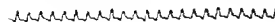
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(NORMAL)

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The importance of shocking graphic records of the circulation for the detection of abnormalities in rhythm, conduction and contracting power of the heart is universally recognized.

The new torsion spring device eliminates friction and permits greater leverage for

The "Dresser" Model of Polygraph is of "Ready Set Up" Type ready for use without any loss of time. It will run one hour continuously at slowest speed, and half hour at full speed, giving all vibrations between.

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Handle

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1 handle with 6 each of 3 sizes of blades, as illustrated
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1.50

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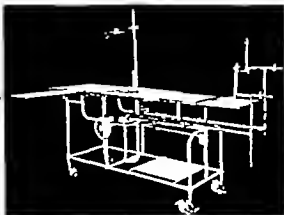
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When not in use
table occupies no
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The only fracture table which associates completely the Bullfinch Frame and which can be used as general orthopedic surgical operating table

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Surgical Sutures & Accessories

KALMERID

217 221 Dufield Street

Brooklyn, N. Y., U. S. A.

Claustro-Thermal Catgut

Aseptic

CLAUSTRO-THERMAL, the improved method of heat sterilization, consists in applying the heat after closure of the tubes, thus avoiding all the chances of accidental contamination. Sterilization by this positive method is made feasible by use of iodine as the taking fluid, instead of the unstable chloroform.

No other mode of sterilization so completely fulfills the existing requirements for the production of ideal sutures as does the Claustro-Thermal method. It preserves the natural physical characteristics of the strands, while the destruction of all bacterial life is absolutely assured.

Claustro-Thermal catgut is aseptic though not germicidal. Not being impregnated with any bactericidal substance, it is inert in the tissues, exerting no inhibiting action.

These sutures are boilable. The tubes even may be autoclaved up to 30 pounds pressure for sterilizing their exterior preliminary to use. The heat sterilization procedure is described on the following page.

VARIETIES OF CLAUSTRO-THERMAL CATGUT

Each Tube Contains Approximately Twenty Inches

| | |
|-----------------------|---------|
| Plain Catgut | No. 106 |
| 10-Day Chromic Catgut | No. 125 |
| 20-Day Chromic Catgut | No. 144 |
| 40-Day Chromic Catgut | No. 165 |

SIZES 000 00 0 1 2 3 4

On purchase of twelve tubes of kind and size

List Price per dozen tubes (in U. S. A.) \$2

A wholesale discount of 20% is allowed on one gross or more. \$2.40 net per gross. Express paid.



Plain Catgut suture, showing its internal structure and the suture thread.



10-day Chromic Catgut suture, showing its internal structure and the suture thread.

Kalmerid Catgut

Antiseptic

KALMERID CATGUT is an improved germicidal suture superseding iodized catgut. It is not only sterile, but, being impregnated with potassium-mercuric-iodide—a double iodine compound—the sutures exert a local bactericidal action in the tissues. It differs from the Claustro-Thermal catgut only in this respect.

The various disadvantages of iodized catgut—decoloration, irritation, and diminished tensile strength—have been overcome through the use of potassium-mercuric-iodide instead of iodine. Unlike iodine, it does not break down under the influence of light or heat, it is chemically stable, and it is neither toxic nor irritating to the tissues. It interferes in no way with the absorption of the suture, and is not precipitated by the proteins of the body fluids.

These sutures are boilable. The tubes even may be autoclaved up to 30 pounds pressure for sterilizing their exterior preliminary to use. The heat sterilization procedure is described on the following page.

VARIETIES OF KALMERID CATGUT

Each Tube Contains Approximately Twenty Inches

| | | |
|----------------|----------------|----------|
| Plain Catgut | Boilable Grade | No. 1206 |
| 10-Day Chromic | Boilable Grade | No. 1275 |
| 20-Day Chromic | Boilable Grade | No. 1245 |
| 40-Day Chromic | Boilable Grade | No. 1265 |

SIZES 000 00 0 1 2 3 4

On purchase of twelve tubes of kind and size

List Price per dozen tubes (in U. S. A.) \$3

A wholesale discount of 20% is allowed on one gross or more. \$3.60 net per gross. Express paid.

Kalmerid catgut is made also in an extra flexible grade which is non-boilable and which is described on the following page.

GERMINAL EFFICIENCY

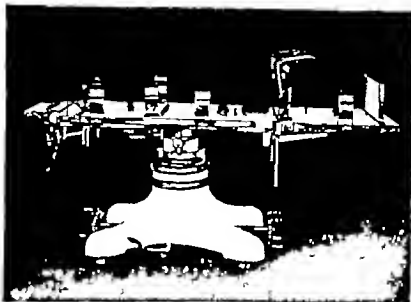
AS COMPARED WITH IODIZED CATGUT

The marked inhibitory power of Kalmerid suture, as compared with iodized suture, is conclusively shown in gross multiplication of culture plates. The bacteria around the iodized suture manifest almost no bacterial growth, while the bacteria around the suture of Kalmerid suture manifest a marked growth. It is evident that Kalmerid suture acts on the bacteria. For further photographs and data on the germicidal action.

See Advertisement on Page 7

THE **+FOSCO+** LINE

TRADE MARK



OHIO Mobile Pedestal Operating Table No. 2
Horizontal, With All Accessories

Surgeons generally will appreciate an operating table of full 72 inch length. This is table length and does not include the length of the head rest.

A strong, wide spread base will also be appreciated, as this obviates entirely the liability of tipping.

The Ohio Mobile Operating Table not only embraces the above but contains the new Lateral Tilting positions which enable the surgeon to place the table in positions never before obtainable.

These new positions not only relieve the surgeon of much of the physical strain of

the operation but bring more safety and comfort to the patient.

A full investigation of the merits of this unusual table should be made by every surgeon.

The Ohio No. 2 is mounted on Cast Porcelain Bases and equipped with special combination ball bearing and cone-bearing casters. Top of Polished Monel Metal which will not rust or corrode. Table elevated to 42° by hydraulic lift. All controls at hand of table in easy reach of anesthetist. Table rotated to any field of vision. Complete with all attachments. Write for catalog.

(Patients Posing on Above Table)

FABRICATED EXCLUSIVELY BY

F. O. SCHOEDINGER

Manufacturers of Aseptic Metal Hospital and Surgical Furniture

Successors to

THE COLUMBUS ASEPTIC FURNITURE CO

Columbus

Ohio, U. S. A.

Unabsorbable Sutures

Heat Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity in Each Tube | Standard Size |
|----------------------------|-----------------------------------|---------------------|
| 350 Celluloid Linen Thread | 80 inches | 000, 00, 0 |
| 360 Horsehair | 4 25-In. Sutures | 00 |
| 370 Plain Silkworm Gut | 4 14-In. Sutures | 00, 0, 1 |
| 400 Black Silkworm Gut | 4 14-In. Sutures | 00, 0, 1 |
| 450 White Twisted Silk | 60 In | 000, 00, 0, 1, 2, 3 |
| 460 Black Twisted Silk | 60 In | 000, 0, 2 |
| 440 White Braided Silk | 60 In | 00, 0, 2, 4 |
| 490 Black Braided Silk | 60 In | 00, 1, 4 |

In packages of twelve tubes of standard size

List Price per dozen tubes (in U. S. A.) \$3

Wholesale discount of 25% allowed on gross or more cartons paid

Short Length Sutures

Heat Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity in Each Tube | Standard Size |
|---------------------------|-----------------------------------|----------------|
| 802 Plain Catgut | 20 In | 00, 0, 1, 2, 3 |
| 812 10-Day Chromic Catgut | 20 In | 00, 0, 1, 2, 3 |
| 822 20-Day Chromic Catgut | 20 In | 00, 0, 1, 2, 3 |
| 832 Horsehair | 2 25-In. Sutures | 00 |
| 872 Plain Silkworm Gut | 2 14-In. Sutures | 0 |
| 892 White Twisted Silk | 20 In | 000, 0, 2 |

In packages of twelve tubes of standard size

List Price per dozen tubes (in U. S. A.) \$1.80

Wholesale discount of 25% allowed on gross or more cartons paid

Sutures With Needles

Heat Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity in Each Tube | Standard Size |
|---------------------------|-----------------------------------|----------------|
| 904 Plain Catgut | 20 In | 00, 0, 1, 2, 3 |
| 914 10-Day Chromic Catgut | 20 In | 00, 0, 1, 2, 3 |
| 924 20-Day Chromic Catgut | 20 In | 00, 0, 1, 2, 3 |
| 964 Horsehair | 2 25-In. Sutures | 00 |
| 974 Plain Silkworm Gut | 14 In. Sutures | 0 |
| 984 White Twisted Silk | 20 In | 000, 0, 2 |



FREDERICK & JOHNS
700 Allen, New York or London

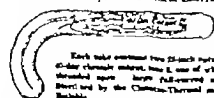
In packages of twelve tubes of standard size

List Price per dozen tubes (in U. S. A.) \$3

Wholesale discount of 25% allowed on gross or more cartons paid

Obstetrical Sutures

For Immediate Repair of Perineal Lacerations



Each tube contains two 25-inch sutures of 6-day chromic catgut, one of which is threaded upon large full-curved needle. Sterilized by the Chromic-Thermal method. Boilable.

One tube in package

Product No. 680 List Price per tube \$.33

Wholesale discount of 25% allowed on gross or more cartons paid

Circumcision Sutures

Heat Sterilized After Closure of Tubes—Boilable



Each tube contains a 20-inch suture of plain catgut, size 00, threaded upon a small full-curved needle.

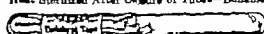
In packages of twelve tubes

Product No. 800. List Price per dozen tubes \$3

Wholesale discount of 25% allowed on gross or more cartons paid

Umbilical Tape

Heat Sterilized After Closure of Tubes—Boilable



Each tube contains two 12 inch ligatures of a specially woven flat tape one-eighth inch wide

In packages of twelve tubes

Product No. 892. List Price per dozen tubes \$1.50

Wholesale discount of 25% allowed on gross or more cartons paid

Standard Sizes For All Sutures

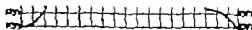
| | |
|-----|--------------------------------|
| 000 | IN conformity with the long |
| 00 | recognized need for a |
| 0 | unified system of sizes, the |
| 1 | standard scale of catgut sizes |
| 2 | now embraces all sutures, in- |
| 3 | cluding kangaroo tendon, silk, |
| 4 | horsehair silkworm gut, and |
| 5 | Pagenstecher's celluloid linen |
| 6 | thread. |

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10. UNIVERSALLY ABSORBABLE LIGATURES. By THOMAS A. BUTTS, F.R.C.S. Medical Director, United States Navy. U. S. M. J. Medical Bulletin, July 1921.

References will be sent upon request

BOTH Caustro-Thermal and the boilable grade of Kalmerid catgut, described on preceding page are subjected to the same sterilizing procedure: the sealed tubes are submerged in a bath of caustal and there exposed for five hours to the rigorous temperature of 166 C (333° F). It is obvious that sterility is absolutely assured. Rigid bacteriologic control is maintained.



Kalmerid Catgut—(Non-Boilable Grade)

Extra Flexible

THE NON-BOILABLE grade of Kalmerid catgut differs from the boilable variety described on the preceding page in that it possesses extreme flexibility—a characteristic sometimes desired by surgeons accustomed to the use of soaked catgut. It is impregnated with potassium-mercuric iodide, and the sutures exert a local bactericidal action in the tissues.

Potassium-mercuric-iodide is the double salt of iodine and mercury; the chemical formula of which is $HgI_2 \cdot 2KI$. Through its use the serious disadvantages of soaked catgut—detritation, irritation, and impaired tensile strength—have been overcome. It is one of the most active germicides known, exerting a killing action on bacteria about ten times greater than that of iodine.¹¹ Physiologically it is bland and is entirely compatible with the tissues, not being precipitated by the proteins of the body fluids.

VARIETIES OF THE NON-BOILABLE GRADE OF KALMERID CATGUT

Each Tube Contains Approximately Thirty Inches

| | | |
|----------------|--------------------|---------|
| Plain Catgut | Non-Boilable Grade | No 1470 |
| 10-Day Chromic | Non-Boilable Grade | No 1476 |
| 30-Day Chromic | Non-Boilable Grade | No 1486 |
| 60-Day Chromic | Non-Boilable Grade | No 1496 |

SIZES 000 00 0 1 2 3 4

In packages of sealed tubes of 10, 20 and 30

List Price per dozen tubes (in U. S. A.)

\$3

A wholesale discount of 20% is allowed on one gross or more (25¢ net per gross; storage paid)

Kalmerid Kangaroo Tendons

Boilable and Non-Boilable

KALMERID KANGAROO TENDONS are the sutures par excellence for those procedures in which post-operative tension is excessive or long continued apposition necessary such as in herniotomy and in tendon and bone suturing. They are not only sterile, but, in addition, are impregnated with potassium-mercuric-iodide as is Kalmerid catgut, which enables them to exert a local bactericidal action in the tissues.¹²

They are genuine kangaroo tendons; they are smooth, straight, of uniform contour and possess a tensile strength about twice that of catgut.

The tendons are chromicized, and so accurately in the process regulated that each size will maintain apposition in fascia or in tendon for approximately thirty days.

Kalmerid kangaroo tendons are prepared in two grades—boilable and non-boilable. The latter are extremely pliable.¹

VARIETIES AND SIZES

Non-Boilable are Product No 370

The Boilable are Product No 370

Each Tube Contains One Tendon

Lengths Vary From 12 to 36 Inches

STANDARD SIZES 0 2 4 6 8

Formerly termed extra fine, fine, medium, coarse and extra coarse, respectively

In packages of twelve tubes of 12 and 36 inch

List Price per dozen tubes (in U. S. A.)

\$3

A wholesale discount of 20% is allowed on one gross or more (25¢ net per gross; storage paid)

THE PENETRATION OF KALMERID BUTYRUS BY POTASSIUM-MERCURIC-IODIDE



at 100° C. for 10 hours. The control tendon is smooth and uniform in appearance. The Kalmerid tendon is rough and irregular in appearance, showing the penetration of the iodine solution.

General Qualities

THE SALIENT FEATURES of all varieties of DaG Sutures are compatibility with the tissues, perfect absorbability, maximum tensile strength,

accuracy of sizes, flexibility and absolute sterility. They are unaffected by age or light, or by extremes of climatic temperatures.

Shred After Closure of Tubes - Boilable

L

In packages of twelve tubes of 100 and 200

Short Length Satures

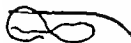
Heat Sterilized After Closure of Tubes—Boilable

| | | | |
|-----|--------------------|-------|---------|
| 242 | White Twisted Salk | 20 In | 000 0.1 |
|-----|--------------------|-------|---------|

Sutures With Needles

Heat Sterilized After Closure of Tubes—Boilable

| Product No. | Approximate Quantity on Hand | Quantity Ordered | Standard Price |
|---------------------------|---------------------------------|---------------------|-------------------|
| 904 Plain Catgut | 20 In | 00, 0, 1, 2, 3 | |
| 914 10-Day Chromic Catgut | 20 In | 03, 0, 1, 2, 3 | |
| 924 10-Day Chromic Catgut | 20 In | 00, 0, 1, 2, 3 | |
| 934 Horsehair | 2 28-In Sutures | 00 | |
| 974 Plain Silk-woven Gut | 14-In. Sutures | 00 | |
| 984 White Twisted Silk | 20 In | 000 0 | |



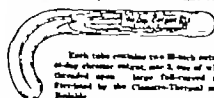
ENERGIZING NEEDLES
For Aches, Pains, or Tension

In packages of twelve tubes of 1 and 2 mg. each.

Last Price per dozen tubes (in U.S.A.)

Obturator Foramina

For Immediate Repair of Perineal Lacerations



Each tube contains two 10-inch sections of 6-day chromomeres, one of which is divided upon large full-curved needles fixed by the (Chambers-Thorpe) method (Binkley).

Case order = 1000000

Product No. 650 Last Price per tube \$.33
Wholesale discount of 25% allowed on orders of 1000 or more. *Continued on page 2*

Circumcision Status

Heat Sterilized After Closure of Tubes—Boilable



Each tube contains a 30-inch suture of plain catgut, size 00, threaded upon a small full-curved needle.

1. Thickness of tooth taken

| Product No. | 000 | List Price per dozen tubes | \$2 |
|-------------|-----|----------------------------|-----|
|-------------|-----|----------------------------|-----|

* Includes discount of 30% allowed on gross or net carriage paid.

Umbilical Tape

Heat Sterilized After Closure of Tubes—Boilable



Each tube contains two 1-inch ligatures of a specially woven flat tars one-eighth inch wide

In a series of further studies

| | | |
|-----------------|----------------------------|--------|
| Product No. 852 | Unit Price per dozen tubes | \$1.50 |
|-----------------|----------------------------|--------|

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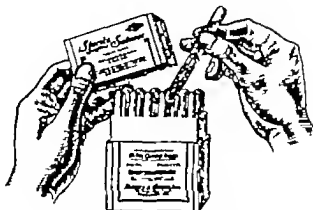
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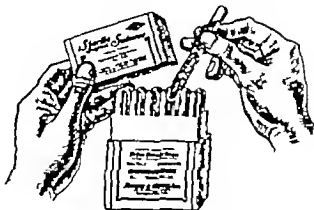
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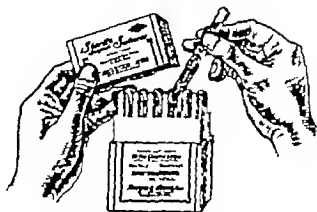
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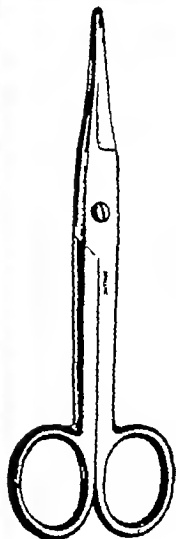
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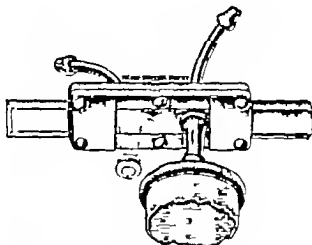


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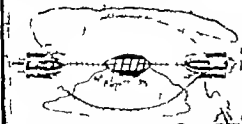
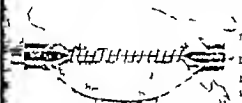
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SURGERY, GYNECOLOGY AND OBSTETRICS

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VOLUME XXXI

JULY 1922

NUMBER 1

JEJUNAL ULCER WITHOUT PREVIOUS GASTRO-ENTEROSTOMY

By EDWARD P. RICHARDSON, M.D., F.A.C.S., Boston

In spite of the extremely active proteolysis which occurs in the upper part of the small intestine during digestion the region of the bowel from the papilla of Vater

to the ileocecal valve is the region in which the effect of acid gastric secretion is shown in the common occurrence of gastric or duodenal ulcer below as the ileocecal valve is approached ulcers from various specific causes, tuberculosis, typhoid fever, dysen-

teritis, etc., affecting the intestine from without for instance adhesions, hernia, trauma, the extension of new growth from adjacent organs or unless they involve the jejunum in common with other parts of the intestinal tract are almost sufficiently rare to be considered surgical curiosities.

The exception to this general rule at the present time is jejunal ulcer following gastro-enterostomy, which if reported cases are a measure is probably the commonest lesion of the jejunum today. It has been estimated to occur in about 1.5 per cent of all cases in which gastro-enterostomy is performed. In these cases of jejunal ulcer we have obvious causative factors in the trauma from operation and the action of acid gastric chyme on a part of the intestinal tract normally unexposed to it. In certain cases the persistence of

irritating suture material is a further predisposing cause of the jejunal or gastrojejunal ulceration. The ultimate reason however why a few cases should develop jejunal ulcer in spite of all precautions of technique, while the great majority remain free, remains obscure. In recent articles upon jejunal ulcer an occasional mention is made of the rare occurrence of spontaneous peptic ulcer of the jejunum in individuals in whom no previous operation has been performed. Van Rooijen (1) in 1909 stated clearly the possibility of such a spontaneous occurrence of jejunal ulcer. He says that peptic ulcer of the jejunum analogous to the peptic or round ulcer of the stomach or duodenum, occurs almost always following gastro-enterostomy. Three cases, however are known to him in which peptic ulcer of the jejunum was found without having been preceded by a gastro-enterostomy. These exceptions to the general rule not commonly recognized in modern literature he believes of great importance, since from such cases light may be thrown on the obscure etiology of jejunal ulcer.

The importance of jejunal ulcer following gastro-enterostomy and the obscurity of its more remote causes lends to such primary ulcers of the jejunum an interest not otherwise justified by their extreme rarity. A recent case of spontaneous jejunal ulcer has led me to look through the literature. My hope was that such a review might add something of value in relation to the more common

postoperative type as suggested by Van Roojen. While this hope has not been justified, it has seemed worth while to collect and analyze reported cases of ulcer of the jejunum occurring without previous operation on the stomach. These cases have considerable interest in themselves, since they are obscure both

cases of simple ulcer of the jejunum including one personal case involving the ileum. The bowel affected was the jejunum 4 times, the ileum 17 times. While many of the cases reported as simple ulcer are far

ing to be sure of finding their way into the literature. While on one hand they approach closely in appearance and course to peptic ulcer of the stomach or duodenum, on the other occasional instances have a resemblance to cases reported as syphilla of the small intestine. My purpose therefore is to gather the facts at present available concerning such jejunal ulcers, with especial reference to the recurring statement that peptic ulcer of the jejunum may occur without operation and to consider the clinical course and etiology of these cases as far as possible from the somewhat meagre evidence at hand.

Ulcers of the intestine, of a type which shows on pathological examination no evidence of a specific causative factor are not extremely rare in literature. Nor is the idea that such ulcers may be peptic a new one. It is, however, an assumption in regard to etiology for which the evidence is questionable. These ulcers however may fairly be classed in accordance with the pathological

culosis, new growth, dysenteric infections, obstructive distention etc. there remain ulcers of the small intestine grossly and microscopically of the simple type, to which we cannot assign a definite cause.

The following case I saw in consultation with Dr. L. M. Spear and sent to the Massachusetts General Hospital believing that his symptoms were due either to perforation of the stomach or to renal stone.

CASE 1. E. S. No. 211540, male born in Ireland, age 47 widower. Admitted January 21, 1900, with

this lesion is simple ulcer following Cruvelhier who first clearly described such ulcers occurring in the stomach.

Combes (2) in 1897 collected 36 cases of ulcer of the intestine which appeared to belong to this simple pathological type. Of these 7 involved the jejunum 12 the ileum 5 the caecum 3 the large intestine and 3 the rectum. Leotta (3) in 1919, collected 22

The abdomen was tympanic throughout the tympany extending 3 centimeters above the costal margin the liver dullness reaching from this point to the sixth intercostal space. The patient held his abdomen tense no masses or herniae were palpable. The left side was rigid, and there was tenderness about 9 centimeters below the left costal margin and in the left flank. There was spasm over this area of tenderness.

Rectal examination was negative. Reflexes were negative.

Operation 3:30 p.m. January 11, 1912. Fiber. Cloudy fluid was found on opening the peritoneal cavity through the upper left rectus muscle. A perforation of the stomach or duodenum was looked

for. The incision was due to a structure on the anterior surface of which was a perforation 3 inch in diameter. About 11 m.p. a small hole in this perforation by dissection and vision similar to Henckle-Mitchell's perforation. On opening the gut hole an antral ulcer about the bow l at the point of attachment through which perforation had taken place and the amount of obstruction and induration made plastic procedure impossible. An atypical reaction was done removing the ulcer and its integument without the dissection of the bowel.

was without duodenal section of the ulcer. The ulcer was closed on a drainage tube. Closure.

Pathological. Part II. The ulcer was of the mucous membrane in the pylorus showing evidence of syphilis. The pathological examination was therefore as follows:

A number of irregular ulcers the largest of which contained part of an ulcer in its margin. Its edge is slightly raised and it has a rough. At one point

was a yellow exudate on the peritoneal surface. There is no evidence of tubercles or malignant disease.

show no

out com-
3 920

that the ulcer is a right than normal. No visible abnormality of filling or outline is seen. It was empty in normal time. The sphincter appeared regular and the first part of the duodenum filled.

empty and colon was outlined by traces of barium only. The only abnormality noted was the position of the stomach and duodenum which is suggestive of adhesions in the right abdomen. No definite lesion was found.

On searching through the records of the Massachusetts General Hospital only one similar case was found. For the privilege of reporting it I am indebted to Dr. C. A. Porter.

CASE 2. W. S. 181,340, female, age 48, married, born in Russia. Admitted March 3, 1912, with diagnosis intestinal obstruction, peritonitis. The family history was negative for tuberculosis, cancer, and hemorrhoids.

Patient has never been in a hospital except in confinement. She has always had fair health except for constipation and stomach trouble. For years she

has had the swollen joint of the heart (epigastrium) has radiated to the shoulders. She has had two children and one miscarriage. Cat mania not remarkable.

Patient has been indisposed for about 7 weeks. A week ago she began to have severe pain about the heart and vomited awful. Since that time she

has not given anything like good results. A note from her doctor states that she began to have severe abdominal pain this morning and repeated attempts failed to move the bowels.

Physical examination showed a well-developed and stout 45-year-old woman, lying in evident distress. The pupils react. The tongue is coated, the mouth otherwise negative. Examination of chest shows no abnormality. The breath sounds are clear except at base where there were numerous deep rales. The heart is not enlarged, sounds regular, fair quality. The abdomen is full, rather distended but not rigid. There were numerous bluish-red areas on epigastrium, the result of turpentine stupes. No masses are palpable but tenderness is present throughout the whole abdomen, more particularly in the epigastrium. No visible peristalsis is observed.

Rectal examination shows nothing except increased abdominal tenderness.

Knee jerks are present—no reflexes.

Temperature 98° pulse 112 white count, 19,000.

Operation March 4 1921 by Dr C. I. Porter
Eller. On median suprapubic incision, thin, cloudy fluid and fibrin flakes without odor were found. Intestines were distended and injected. Explore

pathological findings: chronicity induration, tendency to cicatricial contraction and ultimate perforation. They have much in common with peptic ulcer of the stomach or duodenum.

The records of 4,200 autopsies in the Pathological Department of the Massachusetts

evidence therefore, depends upon the literature. I have been able to find the following cases, nearly all incomplete in various respects, abstracts of which I present at this point, in order to facilitate a discussion of the general aspects of jejunal ulcer arising without operative interference. Cases from the older literature have been included since the total number is so few.

CASE 1. Reported by Wagner (4) in 1858. A laborer of 28 was buried up to the lower chest by a fall of earth. He gave evidence of peritonitis and died 22 hours later. Autopsy showed diffuse per-

itoneal appearance. A ragged, circular perforation through all coats 6 centimeters in diameter is present in one extremity of the gut. The intestine on one side of the ulceration 8 1/2 centimeters, on the other side 3 1/2 centimeters in transverse diameter.

In neither case was the level of the lesion exactly determined. It seems fair however if the ordinary arrangement of the intestinal coils held good in these instances, to accept

Wassermann reaction known although syphilitic exposure would seem probable in Case 1 on account of the repeated attacks of gonorrhea. Sections of the ulcer however were

either case. Each presents a chronic ulcer of the jejunum which cannot be assigned to the usual causes of intestinal ulceration. In their

intestinal obstruction was found, but in the right hypochondrium in a loop of small intestine near the end of the duodenum a small rounded opening was demonstrated the size of a lentil, situated at the level

substance was discovered in the peritoneal cavity. The gall bladder contained stones. The heart was well- the aortic kidneys tital ne-

phitis

The lesion of the jejunum was regarded by those present as being the homologue of perforating gastric ulcer and the acute ulceration of the duodenum

where in evidence

This case appears to be an example of simple ulceration of the small intestine which one can compare with those ulcerations of the stomach which develop without much inflammation and which only show themselves during life by very slight symptoms of dyspepsia

The author does not state definitely whether the perforation was above or below the end of the duodenum. From the terms of the description and the presence of fecal matter in the abdominal cavity it seems probable that the jejunum was involved

CASE 6. Reported by Re erdm (6) in 1867. A man of 55, of alcoholic habits, died after 2 days of vomiting and obstipation. Autopsy showed evidence of pyelitis. On the right half an between the thic crest and the liver was an intestinal perforation. The stomach and duodenum very slightly dilated, presented no alteration of their mucosa. The mucosa of the intestine was normal throughout except at the level of the perforation. The latter was situated on the free border of the intestine at the level of the middle part of the jejunum. It was almost round, the size of a 50-centime piece. Its margins shaped as by a punch, were a little thick and turned back from the serous side. No foreign body was present in the at stune. The remaining organs were essentially negative. No lesion of the abdominal aorta was present.

CASE 7. Reported by Simpson (7) in 189. A man of 56 by trade maltster whose mental condition at death was one of dementia consecutiv t chronic mania collapsed and died suddenly. H was accustomed to de our fifth and rubbish of all

remains of the alimentary canal was normal except t a point 6 inches below the beginning of the jejunum here there was a single ulcer

woman of 63 had for years pain in the stomach, with on two occasions vomiting of blood and malena. Findings, 3 years ago obstructive incompetence of stomach with residue hypersecretion. Diagnosis stenosing ulcer of the pylorus or duo-

superior itself int the duodenum remarkably small for pyloric

as its surroundings, showed macroscopically the signs of chronic inflammation

In the discussion Fraenkel had observed a similar case in which he arrived at a diagnosis of syphilis by means of staining the elastic tissues. Again in a case of phthisis he found a structuring ulcer at this point. The present case appeared to him syphilitic. Katz raised the question whether at the examination of the patient 3 years previously a pyloric in

competence might not have already existed. In this case it was possible that as a result of the existing hypersecretion a peptic ulcer might have developed which had led to a stenosis.

Schmillnickl, in closing said that at the previous examination whether or not the pylorus was capable of closing was not deter-

mined. Six weeks ago, there was

culosis.

CASE 10. Cade (9) in 1913 reported the case of a man, age 35, a grocer clerk, who entered hospital

later

was a blackish green in middle of this that the perforation was situated about 5 millimeters in diameter with ragged edges. The remaining small intestine were negative as were the kidneys, heart and lungs. Many mesen-

terial wall was not seen.
Death. No autopsy.

been to be inclusive rather than critical. Only one case is confirmed both by microscopic examination and autopsy; only three others by microscopic examination and of the six remaining autopsies, several are very briefly reported.

Of the 12 cases, 9 occurred between the ages of 45 and 63 and 10 were in men. In five autopsies in which the condition of the whole bowel is mentioned the jejunal ulcer was the only one present in the intestinal tract excluding for these cases a general ulcerative process. In the remaining cases only one intestinal ulcer was actually demonstrated although more might exist. In 6 cases, confirmed five times by autopsy and once in my own case by operative evidence and X-ray, the stomach and duodenum were apparently negative. Two cases those of Murphy and Bryan showed a lesion of the duodenum or stomach. In four cases the condition of these organs is uncertain. The most frequent situation for the ulcer was within a few inches of

matory changes. These findings are of some negative value in excluding tuberculosis, but are of little positive help in connection with the cause of the ulcers. One case examined by the Levaditi method showed no spirochæta pallida. In no case is the Wassermann reaction known.

Since some of these ulcers are definitely chronic in course it is conceivable that they might prove a starting point for the rare cases of cancer of the jejunum. I am unable to find evidence for this point. Herzog (12) reports a case in which two primary cancers, one of the ileum and one of the ileocecal valve developed on the site of old tubercular ulcers.

Little ground exists for a discussion of the etiology of these ulcers either as a group or as individual cases. In two or three cases

of the urethra and heart disease may be contributing factors; they hardly suffice as a complete explanation for the occurrence of the jejunal ulcer. In one case (Schmilinski) syphilis might have been an adequate cause. But as a whole we can only say that there are certain types of intestinal ulceration to which the majority at least of these cases do not belong. Ulcers of a dysenteric nature may be excluded since such cases would show a diffuse ulcerative process lower down in the intestinal tract, a condition excluded by the cases coming to autopsy and not suggested by the clinical history or operative findings in the remaining cases. Nor is it likely that these cases, with as far as known a single destructive lesion high in the intestinal tract, belong to the rather indefinite groups of catarrhal, follicular and toxic intestinal ulceration. Further the evidence does not favor a recent gross embolism or thrombosis.

Active typhoid fever may be excluded as a cause. While typhoid ulcers may involve the jejunum and even perforate it they are rare at this level. Further typhoid ulcers usually heal without cicatricial contraction and would be unlikely to leave an area of lowered resistance in the jejunum.

Instances of perforation of the small bowel due to stasis and distention above an obstruction are not rare. Such cases have not been

lower. The ulcer in 7 cases showed evidence of chronicity and was associated three times with a definite stricture of the bowel. In 2 cases the ulcer seemed acute; in the remaining case the point is not clear. Perforation occurred ten times in the 12 cases.

Description of the ulcer itself is rather vague. Three times its general resemblance to ulcer of the stomach is noted; twice more its punched-out character is mentioned. Only once was it apparently annular; in general it appeared to affect a limited part of the bowel circumference. In the 3 cases with constriction of the bowel it is hard to say whether the constriction was the effect or the cause of the ulcer, although the former seems to be the case. In 1 case (Cade) the perforation took place above a zone of fibrous tissue in the intestine.

The microscopic examination in 4 cases showed the changes associated with simple ulcer without evidence pointing toward a definite cause infectious or otherwise. In only 1 case did this examination include the mesenteric glands which showed only inflam-

included when recognized above the cause of the ulceration seemed definite. In Case 3 this cause should be considered but here the ulcer occurred at the point of greatest constriction and not above it. In Case 4 a case where the perforation took place above a zone of fibrous tissue, there was no stenosis.

Strangulation of the bowel may lead to cicatricial stenosis. Intestinal ulceration and perforation may occur above or at such a

strangulated hernia. Meyer (14) has shown that a stenosis persisting after strangulation of the bowel is not necessarily double although the intestine is commonly constricted at two points. In a review of the literature he found that a stenosis might develop either from the whole incarcerated loop forming a relatively long narrowing or only from the parts of the loop of bowel actually constricted by the hernial ring. In the latter case single and double narrow stenosis were reported in the literature with equal frequency. There is no reason for suspecting a stricture due to previous strangulation as the cause of jejunal ulcer in the present series of cases; it must however be considered a possibility.

Active tuberculosis as a cause of the ulcer seems improbable since in most cases it would be recognizable on gross examination.

times. One child of 2 dying of generalized tuberculosis, showed a few groups of non-ulcerated tubercles in the jejunum only. Gross perforation of the ileum into the peritoneal cavity occurred 3 times. The fact that perforation of a tubercular ulcer is unusual, occurring in only from 1 to 5 per cent of all cases according to Cruick (15) is hardly an argument against tuberculosis in such a rare lesion as the one under discussion.

In the case of a healed or nearly healed tubercular lesion of the intestine resulting in a stricture or an area of lowered resistance, the primary cause might not be found on gross

examination, and might even be overlooked microscopically if the mesenteric lymph glands were not examined. Yet such an area might be subject to secondary ulceration from sepsis or irritation. That this is possible is shown by a case of Lazarevic (16) where a stenosing chronic ulcer of the jejunum led to diffuse peritonitis; the tubercular nature of the lesion becoming apparent on microscopic examination. It is undeniable that some of these jejunal ulcers may have been tubercular in the beginning, but this does not satisfactorily explain the group as a whole particularly since the cases coming to autopsy do not record tuberculosis in other organs.

intestine. The former is less rare, being observed at autopsy in infants dying of hereditary syphilis, and is not of immediate importance. Oberholzer (17) in 1900 collected 24 cases of acquired syphilis of the intestine in 5 cases associated with syphilis of the stomach. The small intestine was affected in 18 cases, in half of which the jejunum or jejunum and ileum were involved. Perforation occurred twice. Weiss (18) in 1902 found that perforation occurred seven times in 35 cases of syphilis of the intestine. Franckel (19) in 1910 reported 3 cases of acquired syphilis of the small intestine situated twice in the

been much confusion in the past between tuberculosis and syphilis of the intestine. Even admitting that many of the cases previously described as syphilis may have been partly healed tuberculosis, or intestinal ulcers

of sporotrichosis caused acquired syphilis of the small intestine by Arkin (20) and in congenital syphilis by various observers.

MacCallum (21) describes the lesion of acquired syphilis as follows: Tertiary lesions of the small intestine are usually localized in the jejunum, where they appear as flat elevations of the character of syphilitic granulation tissue involving mucosa and submucosa. Multiple ulcers are formed which extend in

is syphilitic is not easy. It may be suggested clinically by the history, by the effect of anti-syphilitic treatment, or by the Wassermann reaction. The gross appearance of the intestinal lesion may be suggestive and may be supported by syphilitic lesions in other organs. Similarly the microscopic examination may be strongly suggestive of syphilis, particularly in the presence of endophlebitis and endarteritis with gummatous infiltration. But there is no conclusive point by which the nature of the syphilitic lesion may be recognized in all its stages unless the spirochaeta pallida is demonstrated in the lesion. Conversely the exclusion of syphilis

is the Wassermann reaction known. The gross appearance of the lesion is suggestive of syphilis. In all three cases the lesion described in these cases, with the possible exception of Case 1 (Schmalinski and Bryan's), we can only say that syphilis produces a type of ulceration leading to stenosis and occasionally to perforation which in contradistinction to other types of intestinal ulceration affects the jejunum more frequently than other parts of the small intestine and thus forms an exception to the general rule of the higher resistance of the jejunum to pathological changes. Whether some of the cases included as simple ulcer of the jejunum are syphilitic in origin can not be stated.

It is only after the exclusion of the causes previously mentioned that the question whether these ulcers of the jejunum should be

classed as peptic ulcers can fairly be discussed. I take peptic ulcer to mean, in the usual clinical sense, an ulcer in the production of which the acid gastric secretion is an important factor, the remaining factors necessary for ulcer formation being not yet entirely clear. In the 5 cases in which the ulcer occurred close to the end of the duodenum it is possible that the acid gastric juice may have been a factor. In the 2 cases with an associated lesion of the stomach or duodenum the ulcer was in this situation. In these cases it is possible that interference with pyloric control, through cicatricial involvement or otherwise, might permit a discharge of gastric contents in such a fashion that neutralization in the duodenum did not occur. In the cases without a lesion near the pylorus persistence of the gastric acidity in the jejunum is harder to imagine. As for the remaining cases, the question of a digestive ulcer from alkaline jejunal contents arises. While such a condition is conceivable particularly secondary to a pre-existing lesion, the mass of clinical experience is against this assumption and it can only be considered a possibility for which confirmatory evidence is lacking. It seems clear however that these jejunal ulcers as a whole cannot be classed as peptic ulcers in the usual clinical sense.

The etiology of these cases therefore remains obscure. The usual clinical course is a sudden peritonitis from perforation without previous warning symptoms. In some cases there are upper abdominal symptoms more or less suggesting gastric or duodenal ulcer. In two of these a definite gastric or duodenal lesion existed. One case only gave symptoms which might suggest the lesion. Here the symptoms suggested pyloric obstruction, but air blown into the stomach emptied itself into the duo-

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included when recognized since the cause of the ulceration seemed definite. In Case 3 this cause should be considered but here the ulcer occurred at the point of greatest constriction, and not above it. In Cade's case, where the perforation took place above a zone of fibrous tissue, there was no stenosis.

Strangulation of the bowel may lead to eccentric stenosis. Intestinal ulceration and perforation may occur above or at such a

strangulated hernia. Meyer (14) has shown that a stenosis persisting after strangulation of the bowel is not necessarily double although the intestine is commonly constricted at two points. In a review of the literature he found

hernial ring. In the latter case single and double narrow stenosis were reported in the literature with equal frequency. There is no reason for suspecting a stricture due to previous strangulation as the cause of jejunal ulcer in the present series of cases. It must however be considered a possibility.

Active tuberculosis as a cause of the ulcers seems improbable since in most cases it

involved 43 times, the jejunum and ileum 5 times. One child of 2 dying of generalized tuberculosis, showed a few groups of non-ulcerated tubercles in the jejunum only. Gross perforation of the ileum into the peritoneal cavity occurred 3 times. The fact that perforation of a tubercular ulcer is unusual, occurring in only from 1 to 3 per cent hardly such a

In the case of a healed or nearly healed tubercular lesion of the intestine resulting in a stricture or an area of lowered resistance the primary cause might not be found on gross

examination and might even be overlooked microscopically. If the mesenteric lymph glands were not examined. Yet such an area might be subject to secondary ulceration from sepsis or irritation. That this is possible is shown by a case of Lazzerini (16) where a stenosing chronic ulcer of the jejunum led to diffuse peritonitis, the tubercular nature of the lesion becoming apparent on microscopic examination. It is undeniable that some of these jejunal ulcers may have been tubercular in the beginning but this does not satisfactorily explain the group as a whole, particularly since the cases coming to autopsy do not re-

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MacCallum (21) describes the lesion of acquired syphilis as follows: "Tertiary lesions of the small intestine are usually localized in the jejunum, where they appear as flat elevations of the character of syphilitic granulation tissue involving mucosa and submucosa. Multiple ulcers are formed which extend in the forms of rings around the gut and which in healing may produce strictures."

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is no conclusive point by which the nature of the syphilitic lesion may be recognized in all its stages unless the spirochæta pallida is demonstrated in the lesion. Conversely the

is the Wassermann reaction known. The gross lesion described as syphilis of the small intestine—girdle-like constricting ulcers usually multiple occasionally with diffuse infiltration of the bowel wall, do not correspond with the lesion described in these cases with the possible exception of Case 1. Schmalz and Bryan's. We can only say that syphilis produces a type of ulceration leading to stenosis and occasionally to perforation which in contradistinction to other types of intestinal ulceration affects the jejunum more frequently than other parts of the small intestine and thus forms an exception to the general rule of the higher resistance of the jejunum to pathological changes. Whether some of the cases included as simple ulcer of the jejunum are syphilitic in origin can not be stated.

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to explain ulcers lower in the jejunum the question of a digestive ulcer from alkaline jejunal contents arises. While such a condition is conceivable particularly secondary to a pre-existing lesion, the mass of clinical experience is against this assumption and it can only be considered a possibility for which confirmatory evidence is lacking. It seems clear however that these jejunal ulcers as a whole cannot be classed as peptic ulcers in the usual clinical sense.

The etiology of these cases therefore remains in doubt. Nor is it at all clear that they should be considered a group with a common cause. Their clinical resemblance may well be due more to their situation than to their etiology. The usual clinical course is a sudden peritonitis from perforation without previous

upper abdominal symptoms more or less suggesting gastric or duodenal ulcer. In two of these a definite gastric or duodenal lesion existed. One case only gave symptoms which might suggest the lesion. Here the symptoms suggested pyloric obstruction, but air blown into the stomach emptied itself into the duo-

included when recognized since the cause of the ulceration seemed definite. In Case 2 this cause should be considered but here the ulcer occurred at the point of greatest constriction, and not above it. In Case 3 case, where the perforation took place above a zone of fibrous tissue, there was no stenosis.

Strangulation of the bowel may lead to clastrical stenosis. Intestinal ulceration and perforation may occur above or at such a stricture. Sessler (13) in 1827 reported a case of perforation of the jejunum occurring from this cause following a successful operation for strangulated hernia. Meyer (14) has shown that a stenosis persisting after strangulation of the bowel is not necessarily double although the intestine is commonly constricted at two points. In a review of the literature he found

examination and might even be overlooked microscopically if the mesenteric lymph glands were not examined. Yet such an area might be subject to secondary ulceration from sepsis or irritation. That this is possible is shown by a case of Lazarevic (16) where a stenosing chronic ulcer of the jejunum led to diffuse peritonitis, the tubercular nature of the lesion becoming apparent on microscopic examination. It is undeniable that some of these jejunal ulcers may have been tubercular

may cause surgical lesions. Both congenital and acquired syphilis may affect the small

hernial ring. In the latter case single and double narrow stenosis were reported in the literature with equal frequency. There is no reason for suspecting a stricture due to previous strangulation as the cause of jejunal ulcer in the present series of cases. It must, however, be considered a possibility.

Active tuberculosis as a cause of the ulcers seems improbable since in most cases it would be recognizable on gross examination. Tuberculosis of the jejunum alone is rare. In

cases of acquired syphilis of the intestine, in 5 cases associated with syphilis of the stomach. The small intestine was affected in 18 cases, in half of which the jejunum or jejunum and ileum were involved. Perforation occurred twice. Weiss (18) in 1902 found that perforation occurred seven times in 35 cases of syphilis of the intestine. Traenckel (19) in 1910, reported 3 cases of acquired syphilis of the small intestine, situated twice in the

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been much confusion in the past between tuberculosis and syphilis of the intestine. Even admitting that many of the cases previously described as syphilis may have been

small intestine seems certain. The presence of *sporochæta pallida* has been shown in acquired syphilis of the small intestine by Arkin (20) and in congenital syphilis by various observers.

THE SURGICAL TREATMENT OF PERFORATED ULCERS OF THE STOMACH AND DUODENUM

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SINCE the time of Mikulicz perforation of a gastric or duodenal ulcer has been an indication for laparotomy. The several methods practised have had but one purpose—closure of the perforation. One was content with this simple procedure which consisted in suturing, covering the defect with omentum, and fixing the ulcer to the anterior abdominal wall. The operator did not do more than expose the ulcer for he did not trust himself to carry out a more radical measure. Kausch, even as late as 1913, distinctly warned against a more radical operation. To my recollection Haberer in 1919 was the first to report successful resections in cases of perforated ulcer of the stomach. Haberer was followed by Eunicke and Massari who reported similar cases. The first complete resections were carried out in 1920 by Schwarzmann of our division. He reported 9 cases of resection of the stomach, 8 of which resulted in cures. Since then only 6 cases have

hyperacidity, even a return to normal acidity—but this was not true in all cases, for there began to appear recurrences in considerable number. However, no other method was suggested to take the place of gastro-enterostomy. Experiments have been made on animals to determine the value of the operation and it has been found (Kelling, Cannon and Blake) that in a patent pylorus the larger amount of

the fundus. It has also been noted that there is scarcely any appreciable difference in the emptying time. This has been verified by repeated X-ray examinations of patients who have had gastro-enterostomy—as before, the stomach contents pass through the pylorus. For this reason it has been taken for granted that the gastro-enterostomy has become closed. However, Schnitzler has shown that a correctly performed gastro-enterostomy can not close as the opening is completely covered with mucosa; that is the opening can only become narrow when the technique is incorrectly carried out—for instance the opening may be made too small or the mucosa may not be painstakingly sutured. In fact one frequently finds, on opening up a patient on whom a gastro-enterostomy has been done, that the old gastrojejunal fistula is entirely patent although the pylorus offers no hindrance. Technical failures that appear after months or years should be excluded as they could have been felt a short time after operation.

1921, xxxi. Henry described a case of recurring perforation. His article has prompted me to report our conclusions which are based on an enlarged experience in treating by means of resection perforated gastric and duodenal ulcer.

One advantage of the unservative methods is that the operation consumes only a short time. On the other hand prognosis can only be indefinite for such method do not remove the ulcer. By means of gastro-enterostomy, however, one endeavors at least to heal. Does this really help the patient?

At the surgical congress in 1905 reports from many sources were made to the effect that gastro-enterostomy did not always yield functional results. After operation we observed at first a disappearance of the complaints due to the ulcer—a lowering of the

After all more stress should be placed upon the unfinished method. Gastro-enterostomy is performed with the idea of deflecting from the ulcerated area the pepsin and acid containing stomach contents. It is not understood just how this is accomplished in the ulcer free pylorus for we know that the stomach contents still go through the pylorus and that the mechanical change is produced only when

denum remarkably quickly and bile was found in the fasting contents thus suggesting an obstruction below the duodenal papilla. The only possibility of diagnosis previous to perforation would appear to depend on the demonstration of a jejunal stenosis by clinical or X-ray evidence.

Five cases were operated on in 3 the jejunum was resected, in 1 a gastro-enterostomy was done for associated duodenal ulcer these cases recovered. One case of advanced peritonitis with closure of the perforation with omentum died. The remaining cases died without operative interference. The operation of choice, on account of the danger of perforation, appears to be resection of the bowel or possibly excision of the ulcer. Short-circuiting by gastro-enterostomy or otherwise may be necessary for a stenosing ulcer in which resection is not possible or when there is associated disease of the stomach or duodenum. In desperate cases, closure of the perforation by the means most readily available is the obvious course.

ally to cicatricial stenosis. No sharp line can be drawn between these simple ulcers of the jejunum and similar ulcers occurring lower in the small intestine. While for the purposes of this paper jejunal ulcers only have been considered it would seem more rational to discuss as one inclusive group, simple ulcers of the jejuno-ileum. Whether these represent a clinical entity or are merely the odds and ends of various pathological processes, can not be asserted.

The two cases of jejunal ulcer reported in this paper appear to be instances of simple ulcers affecting the jejunum. Such ulcers occur chiefly in males beyond middle life. No definite etiology may be assigned to them. It is possible that in so rare a condition there may be almost as many causes as cases. In the cases where jejunal ulceration occurs close to the end of the duodenum it is possible that disturbance of pyloric control may lead to

gastric contents reaching the jejunum without neutralization, and so to the formation of true

readily than the ileum and also has a tendency to cicatricial contraction and perforation. It must be considered as a possible cause of ulceration in some of these cases, although definite confirmatory evidence is lacking. Two points are of particular importance in future cases: a careful microscopic study of the lesions, including if possible the mesenteric lymph nodes, and the determination of

the more so since the perforation does not take place in one of the regions in which we are accustomed to search for it. The present summary is merely offered to call attention to this type of ulcer and the possible relation of some of these cases to syphilis of the small intestine.

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From our experience we have therefore concluded that in perforated ulcer the radical operation is the method of choice. If we wish to save the patient from a long-continued illness for in the end we would be compelled to do the more radical operation provided the patient has not already succumbed from bleeding or further perforation, and we would then have adhesions to deal with.

The question arises, can resection be done in case the ulcer has perforated? A glance at the case reports will answer the question. We have reported 19 cases, of which 14 were cured and 5 died. All of these cases were admitted to the hospital showing clinically wide spread acute peritonitis.

In all of the cases the cause of illness was diagnosed before operation, as perforation of the stomach or duodenum due to an ulcer. In only 4 cases was an iliocecal incision made as the history was very busy and the point of greatest tenderness lay in the caecal region. It was easy to diagnose perforation because of the quantity of exudate in the abdominal cavity. In these cases two drains were placed through the iliocecal incision into the pouch of Douglas, and a median incision was made in the epigastric region. In all the cases, perforation was into the abdominal cavity. There was a diffuse purulent peritonitis, and much gas, exudate and gastric and duodenal contents in the abdominal cavity.

In all cases resection of the stomach was done and more than two-thirds of the stomach was removed in two cases following the Billroth method and in the rest the Kroenlein-Vilkuhicz method. The duration of time between perforation and operation was from 14 to 36 hours. All patients were given as little anesthetic as possible morphine and ether being used. All other details—history, condition of patient, findings at operation, condition after operation and re-examination—are mentioned in the report of cases. It is noticeable that the ages ranged from 24 to 56 years and that the patients came from all walks of life—which has a bearing on the general state of the patient—nourishment and strength.

It will be noted that the cases in which a good prognosis could be made were treated

by non radical resection within the first 12 hours after perforation. Up to this time the patients withstand the radical operation very well, provided the operation is carried out under favorable circumstances by which we mean that the surgeon grasps the situation quickly employs good technique and the patient is given but light anesthesia. Local anesthesia has no advantage. According to Schnitzler except for the severe septic condition of the patient, meteorism is the factor most to be dreaded in influencing the result of operation. The presence of gas, pus, or stomach contents is far less important and large amounts of fibrin or the presence of an oedema of the peritoneum are less influential in the result than is meteorism. In this connection we would call attention to Cases 4, 15, 16, 18 and 19. All these patients were of an unhealthy appearance, breathing was superficial, and pulse was poor. On opening the abdomen a large amount of gas and stomach contents was found but there was very little meteorism. Extreme flatulency of the intestine contra indicated the more radical operation, so we used one of the aforementioned methods (not generally used by us). The severe cases (2, 3, 5 and 8) are not exceptions to our views, for in Cases 2, 3 and 5 we were forced to resect despite the bad condition of the patients, due to the poor state of the infiltrated peritoneum about the ulcer. The sutures all cut through so that it was impossible to complete the simple suturing. One covering of omentum and gall bladder offered such poor results that we hesitated to leave the patient with perforation so insecurely covered as perforation would undoubtedly result, and prove fatal. A gastric plication with a connecting gastro-enterostomy which under favorable circumstances we have tried would have taken less time than the resection which we carried out. Despite the presence of a high grade meteorism as found in Cases 5 and 11 the time elapsed since operation argued against resection, still the patients bore the operation well.

Case 8 died of an unusual complication—thrombosis of the subclavian artery with subsequent gangrene of the upper extremity—after having fully recovered from the periton-

there is complete pyloric stenosis, in which case the stomach contents must go through the new passage. Therefore a great many surgeons have decided that gastro-enterostomy does not offer complete cure for ulcer. It has been stated that the change in the chemistry of the contents of the stomach

loses its destroying action. This would happen only when the stomach is so completely filled that its contents come in contact with every part of the stomach wall and would be permanent only if the secretion were neutralized. It is true that the stomach contents come in contact only with the part nearest the anastomosis. However to heal an ulcer by a change in the chemistry it must be more energetic than is possible in the immediate vicinity of the anastomosis. Schnitzler calls attention to the experiments of Pavlov who found that switching the direction of the pulp did not noticeably reduce the secretion in that portion of the stomach. He disregards the fact that there is active stomach secretion by the false lumen and that even jejunostomy apparently cannot interfere with the secretory

the power of secretion of the stomach glands and that of the intestines with their small irregular supply of alkaline intestinal juice. We know however that the internally produced acidation of the stomach produces only subjective relief as no real clinical or roentgenological cure is effected. Therefore it is evident that gastro-enterostomy offers only

means of curing a gastroduodenal ulcer. The ulcer still exists and therefore there is the danger of hemorrhage and perforation as Schnitzler with the material collected up to 1914 showed. Indeed the danger is doubled through the appearance of peptic ulcer of the jejunum which requires more skillful handling.

Since Braun, in 1899, described the first of

operation even with those who received so

must be found to relieve ulcer of the stomach and duodenum and resection was decided upon as a more effective means of dealing with the condition. The technique of resection has been perfected to such an extent that at present the method can be depended

this method only can the secretion of the mucosa be greatly limited. He believes that gastro-enterostomy is indicated only in stenosis of the pylorus with healed ulcer. While radical resection is carried out only in uncomplicated ulcer one hesitates at times before attempting a palliative operation in perforated ulcer. Apparently one hesitates to

a period of 4 years, was laparotomized for ulcers of the stomach not less than five times, that is for peptic ulcer of the jejunum after

never repeated

freedom from recurrence (controlled clinically and roentgenologically)

From our experience we have therefore concluded that in perforated ulcer the radical operation is the method of choice if we wish to save the patient from a long-continued illness for in the end we would be compelled to do the more radical operation provided the patient has not already succumbed from bleeding or further perforation, and we would then have adhesions to deal with.

The question arises can resection be done in case the ulcer has perforated? A glance at the case reports will answer the question. We have reported 19 cases, of which 14 were cured and 5 died. All of these cases were admitted to the hospital showing clinically wide spread acute peritonitis.

In all of the cases the cause of illness was diagnosed before operation, as perforation of the stomach or duodenum due to an ulcer. In only 4 cases was an iliocecal incision made, as the history was very busy and the point of greatest tenderness lay in the caecal region. It was easy to diagnose perforation because of the quantity of exudate in the abdominal

in the epigastric region. In all the cases, perforation was into the abdominal cavity. There was a diffuse purulent peritonitis, and much gas exudate, and gastric and duodenal contents in the abdominal cavity.

In all cases resection of the stomach was done and more than two-thirds of the stomach was removed in two cases following the Billroth method and in the rest the Krocenlein Mikulicz method. The duration of time between perforation and operation was from 1 1/2 to 36 hours. All patients were given as little anesthetic as possible morphine and ether being used. All other details—history, condition of patient, findings at operation, condition after operation and re-examination—are mentioned in the report of cases. It is noticeable that the ages ranged from 24 to 56 years and that the patients came from all walks of life—which has a bearing on the general state of the patient—nourishment and strength.

It will be noted that the cases in which a good prognosis could be made were treated

by non-radical resection within the first 12 hours after perforation. Up to this time the patients withstand the radical operation very well provided the operation is carried out under favorable circumstances by which we mean that the surgeon grasps the situation quickly, employs good technique and the patient is given but light anesthesia. Local anesthesia has no advantage. According to Schnitzler except for the severe septic condition of the patient meteorism is the factor most to be dreaded in influencing the result of operation. The presence of gas, pus or stomach contents is far less important, and large amounts of fibrin or the presence of an ordema of the peritoneum are less influential in the result than is meteorism. In this connection we would call attention to Cases 4, 15, 16, 18 and 19. All these patients were of an unhealthy appearance, breathing was superficial, and pulse was poor. On opening the abdomen a large amount of gas and stomach contents was found but there was very little meteorism. Extreme flatulency of the intestine contra-indicated the more radical operation so we used one of the aforementioned methods (not generally used by us). The severe cases (2, 3, 5 and 8) are not exceptions to our views for in Cases 2, 3 and 5 we were forced to resect despite the bad condition of the patients due to the poor state of the infiltrated peritoneum about the ulcer. The sutures all cut through so that it was impossible to complete the simple suturing. One covering of omentum and gall bladder offered such poor results that we hesitated to leave the patient with perforation so insecurely covered as perforation would undoubtedly result and prove fatal. A gastric plication with a connecting gastro-enterostomy which under favorable circumstances we have tried would have taken less time than the resection which we carried out. Despite the presence of a high grade meteorism, as found in Cases 5 and 11 the time elapsed since operation argued against resection, still the patients bore the operation well.

Case 8 died of an unusual complication—thrombosis of the subclavian artery with subsequent gangrene of the upper extremity—after having fully recovered from the periton-

itis. The intestinal function was fully restored on the second day after operation, the patient did not vomit he could even take fluid diet, and he had no pain whatever in the abdomen.

Case 14 was operated upon immediately after perforation and is the only case in which the radical method can be said to have failed. At any rate before operation the patient showed symptoms of immediate collapse and had a rapid pulse on the other hand the light grade meteorism and the good condition of the intestinal mucosa argued strongly for resection. A beginning pneumonia did not contra indicate resection as in anaesthetizing the patient only 4 grams of Billoth mixture and 20 grams of ether were used.

A few words regarding technique of operation. The stomach is washed out the patient anesthetized with morphine and ether and the abdomen opened through a median incision from sternum to navel. Even in the most difficult case it has not been necessary to enlarge the original incision. On cutting through the peritoneum gas under pressure and ordinary fluid contents pour out through the duodenal perforation—infected peritoneal exudate mixed with stomach contents food remnants and bile. The stomach is pulled forward while at the same time the liver is pulled back and upward. Generally at this point everything is visible. In most cases the perforation is located anteriorly in the duodenum or stomach near the pylorus. If the perforation is not found here by blunt dissection one works backward through the gastrocolic ligament and thus easily reaches the opening through which stomach and intestinal contents are exuding. The perforation is closed temporarily with silk sutures, from pylorus to one-third the way to the cardiac orifice and the gastrocolic ligament is separated by interrupted ligatures. In this way the view is unobstructed. There is a disadvantage in ligating the ligament in case

In the postoperative treatment we pay special attention to peritonitis. We stimulate the heart function with tonics and overcome the loss of blood by Murphy drips and subcutaneous infusions of physiological salt solution. In severe cases we depend upon intravenous infusion of hypertonic salt solution (15 1,000). In case of vomiting we empty the stomach by inserting carefully a stomach tube which gives great relief and, so far as we have observed, does no harm. Twenty-four hours after operation the patient receives fluid in the form of tea and water a teaspoon every half hour. This is increased from day to day. We generally begin giving fluid nourishment *per os* on the fifth or sixth

but not too much at a time.

To study our results, we examine our patients, after a lapse of time, with the X ray (Drs. Lister and Werner). We have found that no change has taken place in the wall which would indicate ulcer in any of our cases. In Case 4 13 years after operation the patient complained of slight pain at the point of resection; he had never vomited and the pain had no relation to meals. Roentgen examination showed no changes in the wall and the stomach emptied through the anastomosis normally and in the usual time. One patient could not be reached by mail as he had moved leaving no address. Two other persons could not appear personally so sent us cards telling us of their condition, which tallied with the above satisfactory findings.

The patients are all free from distress, have good appetites, and eat anything. In all

used by others. The ~~operation~~ ^{necessity} of isolating the abdominal field from the rest of the field of operation and

restored to perfect health.

On the strength of our experience we would recommend that, wherever possible stomach resection be done in cases of ulcer of the stomach and duodenum, even in the presence of perforation and peritonitis, also that the older methods be used only when no other method is possible. We have shown that the radical method is practical both as far as operating is concerned and as to result, since with proper indications there is only a small mortality.

CASE 1. Servant, age 29, admitted to hospital, July 11, 1919, with a history of having suffered from stomach trouble for the past 2 years. On calling the patient complains of violent pain located

trouble which has been severe at times and at

nausea. The wound was closed without drainage

not vomit, and the abdomen was very tense. Meteorism was present in slight degree. Operation was done 5 hours after perforation. The perforation was 1 centimeter in front of the pylorus on the anterior gastric wall, close to the lesser curvature. There was a large amount of mucous exudate and of stomach contents and gas in the abdominal cavity. Light meteorism was present in the intestines. There were deposits of fibrin in the serosa which was red and somewhat edematous. A resection following the Krasnietz method with primary closure without drainage was done. Narcotic used: 5 grains morphine, 100 grains ether. Patient had smooth convalescence and was dis-

stump on the left side and emptying time is prompt. No change in the walls is to be found. No point is painful on pressure.

CASE 4. Patient woman, laborer, age 35, admitted November 1, 1919. For 4 months patient has suffered with distress in stomach and pain in the back. She has vomited. Perforation occurred on day of admission and was associated with extreme pain.

perforation. Cheeks inflated, and extremely painful to pressure. She hiccupped. Operation was done 1 hour after operation. Much gas and fluid with stomach contents were found in the abdominal cavity. There was a perforation near the lesser curvature in the pyloric third. Inside the stomach there were 6 ulcers. There was thick mucus.

trous in the stomach. Last night the pain located in the epigastrium became very severe and he vomited. On admission pulse was 78, temperature 38.1 C. The entire abdomen was tense, hard as a board and very painful to pressure, chiefly in the epigastric region. Operation was done 7 hours after perforation. Some gas and exudate were found in the abdominal cavity. The perforation was located on

the stomach, following the Krasnietz technique was done and the wound closed without drainage. Narcotic used: 30 grains morphine, 100 grains ether. Convalescence was smooth and the patient was discharged as cured on September 20, 1919. The nature of the

up to July 1921 patient remained entirely

quiescent. The pylorus is somewhat dilated. No

Case 5. Patient male, age 5, admitted October 19, 1919. For 16 years he has suffered with stomach

admission to hospital she had violent pain in the epigastrium. She did not vomit. She had crural pains. Bowels had not moved for 3 days. Exam-

lation shows pulse 120 arrhythmic temperature 37.6 C Patient is woman of moderate strength with hippocratic facies The abdomen is very tense and painful on pressure, chiefly in the iliocecal region She vomited profusely and had violent hiccough Operation was done 36 hours after perforation. Enormous quantities of gas and pus with stomach contents were found in the abdominal cavity The serosa was thickened intensely red, and contained deposits of fibrin. The perforation

stomach resection after the method of Kroenlein was done and the abdominal wall sutured Narcotics

no trouble at all

10 grams mixture 300 grams ether Patient died December 3, 1919 Postmortem examination showed a subacute tuberculous of both superior lobes, brown atrophy of the heart, and a diffuse purulent peritonitis

CASE 6 Printer age 52 years was admitted November 29, 1919 For 30 years he had suffered periodic distress in the stomach On day of admission patient suffered a sudden, acute attack of extreme pain in the epigastric region, associated with violent vomiting Pulse was 96 temperature 36.7°C Patient was of moderate strength, and appeared ill The abdomen was drawn in and tense, hard as a board There was tympanic sound underneath the sternum Time elapsed between perforation and operation not known Operation

opening the abdomen a large amount of gas and gastric juice was found Perforation was located on the anterior wall of the duodenum close to the

tained deposits of fibrin A stomach resection after the method of Kroenlein was done and the wound

Röntgenological examination shows a well contracted stump of moderate size, with prompt emptying of the stomach contents There is no change evident in the walls and no point of sensitivity on pressure

CASE 7 Tailor age 24, entered hospital June 13, 1920 Until 3 days ago he had never had trouble with his stomach, but at this time he has severe pain and on the afternoon of the day before entering hospital he was seized suddenly with terrific pain in

gram showed a well contracted stump of moderate size emptying time short, and no change in walls At this time there is no point which is painful on pressure

one-half hours elapsed between perforation and operation On opening the abdominal cavity there

As appearance was Patient

Operation was done 5 hours after perforation Much gas and some free exudate were found in the abdominal cavity chiefly beneath the liver Perforation was located on the duodenum, close to the pylorus No meteorism was present The serosa was red, somewhat edematous A

drainage Narcotics used 5 grams mixture, 180 grams ether Convalescence was interrupted by a bilateral pleurisy Patient was dismissed cured on July 3, 1920 Aside from short period, November 6, 1920 December 17, 1920 when an operation for abdominal pressure was done patient has had no trouble at all He can eat anything and has gained 4 kilograms in weight X-ray examination shows well contracted resection stump of moderate

size Emptying time is moderately prompt. There is no change in the walls, and no point painful to pressure.

Case 10 Director entered hospital, March 3, 1920. For a year patient has been suffering from stomach trouble. Perforation was brought on by lifting a heavy load. On admission pulse was 85, temperature 37.5 C. Patient is weak with hypochromic facies. The abdomen is hard as a board and is especially sensitive to pressure in the epigastric region. Operation was done 7 hours after perforation.

smooth and the patient was dismissed as cured on April 30 1920. On July 15 1921 patient reports

moderate size and emptying time is moderately prompt. There is no change in the walls and no point painful on pressure.

CASE 11 Workman, age 30 entered hospital

During large quantities of gas and stomach contents were found. The perforation was located on the anterior pyloric wall. There was marked meteorism. The serosa was thickened, red and on it were deposits of fibrin. It was easily perforated. A stomach resection after the method of Krasnukin was done and the abdominal wound closed. Narcotics used: 30 grams ether. The patient died September 11, 1930. Postmortem examination showed diffuse peritonitis and weakness of the heart.

CASE 1 Merchant, age 41 entered hospital September 1, 1971. Present illness—

um was present. The serosa was red, contained many deposits of fibrin, and was easily perforated. A stomach resection after the Krasnein method was done and the abdominal wound closed. Narcotics

On June 1, 1920, at 10 p.m. he was taken ill in the stomach, chiefly at night. Perforation occurred during violent pain and vomiting. On admission pulse was 96, temperature 37.5°C. Patient is a vigorous man showing evidence of extreme illness. The abdomen is intensely sensitive to pressure, tense and as hard as a board. Patient hiccoughed violently. Operation was done 11 hours after perforation. On opening the abdominal cavity some gas and exudate were found. The perforation was found on the anterior duodenal wall, close to the pylorus. There was light meteorism. The serosa was thickened and reddened. Stomach resection after the Krause method was done and the abdominal wound closed. Narcotic used: 4 grams mixture 100 grams ether. Convalescence was smooth and patient was dismissed as cured on November 28, 1920 after being treated with arsenic. Report on July 28, 1921 states that the patient is feeling perfectly well, can digest all food, and has increased 9 kilograms in weight. X-ray examination shows resection stump on left side and rather prompt emptying time. There is no change in the walls. Somewhat to the right of the stomach is a point painful to pressure.

CASE 14. Workman, age 42 entered hospital October 28 1920. For 4 years patient has suffered with severe distress of the stomach. Roentgen examination showed an ulcer of the stomach. Perforation followed a period free from pain and was associated with intense pain and vomiting. On admission pulse was 130 (temperature 38.4 C). Patient a vigorous man with peritonitic facies. The abdomen is distended, tense and hard as a board. Operation was done 4 hours after perforation. On opening the abdominal cavity much gas and some stomach contents were found. The perforation was found on the lesser curvature near the pylorus. There was some metrorrhagia. The serosa was red somewhat thickened. Stomach resection after the method of Krombholz was done and the abdominal wound

IN MARCH 1 1970 FOR 18 YEARS WITHOUT HAD

ization shows pulse 120 arrhythmic; temperature 37.6° C. Patient is woman of moderate strength with hippocratic faces. The abdomen is very tense and painful on pressure chiefly in the abdominal region. She vomited profusely and had violent hiccough. Operation was done 36 hours after perforation. Enormous quantities of gas and pus with stomach contents were found in the abdominal cavity. The serosa was thickened, intensely red, and contained deposits of fibrin. The perforation was located on the anterior wall of the stomach close to the pylorus. A resection of the stomach after

stomach resection after the method of Krieslein

no trouble at all

brown atrophy of the heart, and a diffuse purulent peritonitis

CASE 6 Printer age 51 years was admitted November 20, 1910. For 30 years he had suffered periodic distress in the stomach. On day of admission patient suffered a sudden acute attack of extreme pain in the epigastric region, associated with violent vomiting. Pulse was 96, temperature 38.7° C. Patient was of moderate strength and appeared ill. The abdomen was drawn in and tense, hard as a board. There was a tympanitic sound underneath the sternum. Time elapsed between perforation and operation not known. Operation

opening the abdomen a large amount of gas and gastric juice was found. Perforation was located on the anterior wall of the duodenum close to the

incision 10 grams pus was seen in the stomach and the patient was dismissed as cured on March 28 1910. On July 13 1911 the patient

pressure

const. On admission the pulse 120 temperature

pressure

Operation was done 5 hours after perforation. Much gas and some free exudate were found in the abdominal cavity chiefly beneath the liver. Perforation was located on the duodenum, close to the pylorus. No metrorrhoea was present. The serosa was red, somewhat oedematous. A

drainage. Narcotic used 5 grams morphine, 150 grams ether. Convalescence was interrupted by a bilateral pleurisy. Patient was dismissed cured on July 13, 1910. Aside from a short period, November 10, to December 17 1910 when an operation for abdominal pressure was done patient has had no trouble at all. He can eat anything and has gained 4 kilograms in weight. X-ray examination shows a well contracted resection stump of moderate

MARGINAL ULCER AFTER A MODIFIED POLYA OPERATION

BY J. P. HOGUET, M.D., I.A.C.S. AND L. G. COLF, M.D., NEW YORK

THE question of marginal or gastro-jejunal ulcer following a gastro-enterostomy has, of late interested many surgeons and a large number of such cases has been reported in recent years. It would seem from reading these reports that a gastro-enterostomy for a gastric or duodenal ulcer is a poor operation, and yet for the majority of cases that one sees it is apparently the best operative proceeding that we have to offer at present. The one operation that can possibly replace a gastro-enterostomy is the pyloroplasty of Horley and the field for the latter is limited to a comparatively small number of duodenal or postpyloric ulcers without extensive cicatrization and very limited in size. A marginal ulcer is known to have followed other anastomosing operations as Erdmann has described one after a Billroth No. 2 and we are now describing one after a modified Polya operation.

As far as we know at present the cause of gastric and duodenal ulcer is probably a hematogenous infection from some other primary focus, a demon strated by Rosenow, by some specific bacterium and it would seem quite possible that the cause of a marginal ulcer in a patient after a gastro-enterostomy is a reinfection by the same bacteria on account of non-removal of the original primary focus. It is very possible that there are other factors which aid in the formation of marginal ulcers and yet these may be purely secondary. Among them we may mention the following:

A non-absorbable suture material. It is true that silk and linen thread have been found in many marginal ulcers and yet many cases have been reported where only absorbable suture material had been used throughout the operation.

The use of heavy clamps. Trauma and lacerations from the use of Roosevelt, Allen, and other tightly applied clamps may and may not help in the formation of these ulcers. They are not reported after the large resec-

tions for carcinoma of the stomach in which traumatism to the stomach wall is of necessity much greater and in which heavier clamps are often applied with greater force. It is possible however that marginal ulcers may occur after these resections and may be obscured by local recurrences. The fact remains however that marginal ulcers are reported after operations by surgeons who use no clamps whatsoever.

Syphilis. Erdmann mentions this disease as having been shown in three out of five ulcers excised and examined microscopically and yet this condition can not be given as a definite causative factor in the majority of cases.

Chemical changes. Hyperacidity has often been blamed for the formation of gastric and duodenal ulcers and at present according to Horley it is the most important etiological factor in the formation of marginal ulcers. And yet one is forced to wonder whether too much importance has not been laid on this point. It has never been definitely decided whether hyperchlorhydria is a causative factor of ulcer or whether it is only found when the ulcer has actually made its appearance. Cases are frequently seen in which there is no excessive secretion of hydrochloric acid.

It is true that the marginal ulcer is usually seen in the wall of the stomach itself or in the wall of the jejunum opposite the stoma, a fact which would seem to show that the ulcer is due to the chemical irritation of the acid gastric juice not neutralized by the alkaline duodenal contents. Yet we know that many ulcer cases are seen where there is no hyperacidity and Lewisohn has lately reported a case of marginal ulcer where a hypoacidity was present in the gastric contents.

Several authors have used the words 'personal idiosyncrasy in the production or re-production of marginal ulcers.' On analysis this simply means that an operation was done for the cure of an ulcer and that in spite of dietary and medical care another ulcer ap-

drawn in and intensely painful to pressure especially in the epigastrium. Operation was done 5 hours after perforation. On opening the abdominal cavity a large amount of gas and stomach contents was found. The perforation was found on the lower curvature near the pylorus. There is some meteorism. The peritoneum is red and oedematous. A stomach resection after the method of Kroenlein was done and the abdominal wound closed. Narcotic used: 2 grams mixture 20 grams ether.

side and prompt emptying time. There is no change in the walls and no post painful to pressure.

CASE 6 Servant age 46, entered hospital December 29 1920. For 14 years patient has a

evening before entering hospital patient experienced feeling as though something gay way in abdomen. On admission pulse was 100 temperature 36.6°C. The patient looks miserable the abdomen is drawn in and is hard as a board. He vomits violently. Operation was done 6 hours after perforation. On opening the abdomen much gas and exudate was found. The perforation was located on the lower curvature close to the pylorus. There is light meteorism. The peritoneum is red and sticky. A stomach resection following the method of Krucinski was done and the abdominal wound closed. Narcotic used 4 grams mixture 110 grams ther. Con. analgesic was smooth and patient was dismissed as cured on 1 January 1913. Letter from patient in middle of June 1913 states that he is entirely free of distress.

CASE 7. Conchita, age 44, entered hospital April 19, 1971. For 4 weeks he has had stomach trouble and on evening before entering hospital while lifting a heavy load patient was seized with violent pain, and perforation occurred. Examination on admission showed pulse 20, temperature 37 C.

23-24

Shirley was taken away to the old man and

metastases. The peritoneum was red, somewhat ulcerated. A stomach resection after the method of Kroyen was done and the abdominal wound closed.

either
dumb
1921. n

anything and in larger quantities, and is able to continue with his usual occupation. X-ray examination shows a short, somewhat dilated stump, with prompt emptying time. There is no change in the walls. There is a point painful to pressure just outside and to the right of the stump.

Case 9. *M. machinalis*, age 46, entered hospital May 31, 1920. Patient had suffered periodic distress in stomach for past 30 years. He had severe attacks of vomiting of sour menses. Perforation occurred when patient was bending during an attack of pain and vomiting. On admission pulse was 66, temperature 37.0° C. Patient is of moderate strength.

deceased as cured on June 9. Report on
Jul 921 show patient entirely free of com-

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LITERATURE

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Fig. 1. After operation. No pyloric stenosis. Stomach normal in size and shape. No cap shown. Normal gastric peristalsis.



Fig. 2. Recurrence after operation, stenosis at stomach. Stomach dilated. No cap shown. Arrows indicate crater of ulcer of jejunum, hyperperistalsis.

suture of Pagenstecher. An end-to-side anastomosis was made between the cut end of the stomach and the jejunum, a Pagenstecher suture being used for the serosal stitch and No. 1 chromic gut for the mucosa. The jejunum lateral to the anastomosis was then sutured to the sides of the hole in the gastroduodenal omentum. The abdominal wall was

of a definite crater about one-half inch in length and one-fourth inch in width. Surrounding this was an area which seemed to be a large indurated mass.

supervision

February 10, 1917 and was put on a Lenhartz diet and kept in bed. His symptoms rapidly disappeared and he was discharged on March 25, 1917. He remained at home for several weeks under treatment. He was perfectly well except for a slight

operation on the stomach itself. The 2 hour plates showed the stomach almost completely empty there being only a slight trace of barium in the stomach at that time. The 6 hour plate showed the stomach completely empty, the head of the column in the ascending colon and the tail in the coils of the ileum.

The patient resumed his work in the fall of 1916 and complained of nothing until February 1917 when he began to notice some acid eructations which were followed in a few days by nausea and vomiting. The vomiting had no relation to his meals but usually occurred at night and consisted generally of liquids without any undigested food material and never contained blood. He had no abdominal pain.

began to complain of a feeling of general malaise and an uneasy feeling in the stomach. On December 13, 1920, he had for the first time a definite attack of pain in the epigastrium which came on a few hours after a meal and was somewhat relieved by bicarbonate of soda. The pain kept up for several days and was accompanied by some nausea. There was no blood in the stool. He was readmitted to the hospital December 20, 1920. Physical examination at that time showed slight enlarge-

ment and there was a persistent flick of barium just below the stomach.

diagnosis of a rather large ulcer on the upper aspect of the jejunum just beyond the gastric stoma with

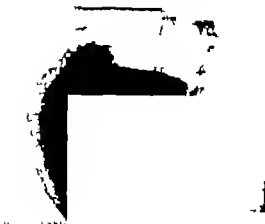


Fig. Before operation. Marked pyloric stenosis pyloric end of stomach greatly dilated, cap distorted. Legend recumbent pyloric sphincter dilated.

peared at a new site although the original one had been apparently cured in the mean time. In two of Erdmann's cases there were apparently two new ulcers appearing since the operation for the original one. In all probability anastomosis simply means re-infection at a new site from an undiscovered primary focus. Where such a primary focus is discovered and removed medical and dietary treatment probably will cure many ulcers. A gastro-enterostomy without the removal of the primary focus will probably permanently cure many ulcers where the agent of infection from the primary focus is one of slight virulence. Where however the virulence of the bacteria is great a gastro-enterostomy may cure the original ulcer but a new ulcer may be caused by the same bacteria from the unremoved primary focus, in the new stomach which is an area, irritated by non-absorbable sutures traumatized by heavy clamps or burnt by highly acid gastric contents, and therefore an area the resistance of which to bacterial infection has been materially decreased.

The patient was a very energetic, blue man of 45, the editor of a scientific journal whose or-

feeling of fullness in the epigastrium, but no real pain. The attacks lasted for only a few hours at a

he became very constipated. He had lost so to

peristalsis was very active, of the four-cycle type

From these plates Dr. Cole made a positive diag-

the formation of the second ulcer could be followed so closely

sutured end of the stomach, the jejunum being used at about 4 inches distal to the old anastomosis. The abdomen was closed in the usual way.

Several points in the operative findings are worthy of consideration. First that the ulcer had apparently started in the wall of the jejunum had enlarged so that it had encircled the stoma and then had cicatrized so that, at operation the latter was scarcely as large as a lead pencil in diameter.

The second point is that no remains of non-absorbable suture material were found in dividing the old anastomosis.

The third is that several bands of stout ad-

stricted colon have been the cause of both the first and second ulcers.

The patient did very well until the sixth day after operation when the nurse reported a discharge on the dressings. When the latter were removed it was found that the wound had opened for about 3 inches at its lower angle through the peritoneum. This was immediately resutured under local anesthesia with a number of through and-through silk worm-gut sutures. The patient did well for 4 days more when his temperature and pulse rate started to rise and he died on the fourteenth day after the first operation.

A wound inspection was made and showed no general peritoneal infection. The stomach was not distended and the new anastomosis seemed to be firmly healed. There was no bleeding near the stoma. There was a mass of omental adhesions over the sutured pyloric end of the stomach and on separating these it was found that the sutured end of the gastric wall, at the site of the old stoma had not united and that a cavity had formed at this point between stomach wall and omentum, in which there was about an ounce of pus. The sutured incision in the wall of the jejunum where the old anastomosis had been divided, was tight.

MEGASIGMOID MEGARECTUM FÆCAL BOLUS

By FREDERICK G. CORBIN M.D. C.M. MENDOZA, ARGENTINA, REPUBLIC

I WISH to use the word megasigmoid as that to my mind best implies the pathological condition I am about to describe. For the last 22 years in this city of Mendoza we have been fighting megarectosigmoid and fecal bolus and have been studying its cause and effect. During this time I have observed from an experience with some 200 cases the following. First that the world literature on this subject is almost nil especially in view of the gravity and frequency of this disease here. Second that many deaths in Mendoza are caused by megasigmoid or are rather direct consequences of this condition. Third that appendicitis, gastric ulcer, duodenal ulcer and cancer of the rectum about which so much appear in the world's literature all together do not cause so many deaths in Mendoza as do megasigmoid and its direct sequelæ. Fourth that megasigmoid is much more common in Mendoza than in Europe, North America or Buenos Aires. Fifth that there is a great

deal of confusion among authors many describing congenital megacolon and megasigmoid and megarectosigmoid as if they were all one disease.

I do not remember ever seeing or hearing of a case of fecal tumor in the Montreal General Hospital during my student years at McGill, from 1885 to 1890. The same may be said of my 6 months in 1890 spent in the British Hospital in Buenos Aires. I saw a few cases of coprostasis which with a simple soap suds enema followed or preceded by a dose of castor oil were easily relieved.

Of my early years of practice I have no written records but in the Rio Negro from 1890 to 1894 I remember only one case of fecal tumor and one of volvulus of the sigmoid. The latter in a police autopsy, poisoning.

In 1898 I did (beds). I remember only one case of fecal tumor. In 1896 I saw and helped the late Dr. Andres



Fig. 4. Second recurrence after operation. Stenosis of stomach, stomach dilated, no cap, mva indicates crater of ulcer of jejunum hyperperistalsis.

enough induration to cause obstruction and 24-hour retention.

He remained in the hospital until January 9, 1909, under strict dietary treatment and then

A series of plates made of the stomach immediately

dilatation of the jejunum just proximal and just distal to the stomach. There was an immense amount of induration surrounding the stomach, particularly

tion up to 24 hours.

From study of these plates Dr. Cole made a diagnosis of jejunal ulcer just beyond the stomach, with marked contraction of the stomach, and surrounded by a large amount of induration.



Fig. 5. Second recurrence just before final operation. Stenosis of stomach, arrow indicates small crater surrounded by much induration. Hyperperistalsis.

After a consultation it was decided to operate for the marginal ulcer. The patient re-entered the hospital on April 3, 1909, and the following operation

was made with a knife and the opening in the stomach closed with two layers of chromic catgut. The

forms the rectal pouch. This first part of the rectum at the same time the narrowest, forms an "S" from left to right and from before backward.

In 95 per cent of my cases of fecal accumulation this first part of the rectum and the iliac sigmoid immediately above are the situations chosen. *Here* is the dilatation *here* is the tumor and *here* is the degeneration of the muscular coat of the intestine. It is here that the fibrous tissue replaces the muscular to a great extent and the normally elastic intestine loses all its contractile power. Soap suds and oils clean out the rectal pouch in the second part of the rectum but the fecaloma bag and hard in the rectosigmoid

admit the passage of gases and liquid feces. The intestinal walls often stimulated by drugs, do their best to shove on this mass and without doubt the normal peristaltic movements are increased in these cases at least at first. The results are multiple. A hard tumor forms the walls lose their form size and thickness, their muscular coat is converted into a fibrous coat sometimes nearly a centimeter thick, and the whole mass with its intestinal covering migrates to the right iliac fossa. The rectosigmoid segment is often 20 centimeters in diameter and this for a distance of 25 to 40 centimeters from the peritoneal fold (Perthes') of the first part of the rectum to the descending colon rarely much farther while the transverse colon may be dilated and full of liquid feces, but without

for the place of least resistance, migrating to the middle line and often to the right side of the abdomen.

This emigration of the sigmoid and the first part of the rectum from its normal situation is undoubtedly favored by the mesos mentioned always long and weak in persons who suffer from this disease. Thus lengthening may be the congenital part in these cases. Barth claims. There is in front a muscular wall to the left and behind a bony wall making the middle line and the right side the natural localities for the final enlargement of the tumor which once started very quickly increases in size.

The first consequence of this emigration is the formation of a kink in the first part of the rectum at or near its union with the second part making it more difficult, if not impossible, for the passage of the accumulated fecal matter. This kink may be helped in its formation by a congenital abnormal state of the mesosigmoid and mesorectum.

Gas is the best dilator and it is rare that even when the tumor has reached enormous size there is complete obstruction. The gases prevent the passing between the fecaloma and the intestinal wall which they gradually stretch dilating the lumen of the bowel to many times its natural size.

Both Dr Mettreux of this city and I have noted "chimneys" in these tumors which

formation of a fecal tumor in a sigmoid and rectum which was not defective at birth.

The cause. At first a little carelessness regarding the bowels with possibly a slight defect in Perthes' fold.

The effect. a megasigmoid forever. Because these mesos will never regain their length and tone, this intestine will never return to its normal size and the walls will never lose their thickness or regain their original elasticity. Under these circumstances new fecal tumors form time and time again, each time

springing a disease" a malady of infancy and without doubt very distinct from megasigmoid. Distinct because 80 per cent of our cases are in persons over 40 years of age who declare they did not suffer in their childhood from intestinal stasis. I know cases that have suffered from the formation of fecaloma for 20 years but not one who had it from childhood.

An inflammation of the small intestine is called enteritis of the colon, colitis



— — — — — Transverse section of the

removed.

This case is noteworthy only because it is in a girl of 18 years. Case of Dr. Metzger, January, 1922.

Llobet do his operation, i.e. laparotomy and crushing of the fecal mass *in situ*. Later on I will again speak of this.

In the Buenos Aires hospitals they tell me that now this disease is comparatively rare. There are cases and with the aid of the X-ray they find many megacolons and megasygmooids without fecal tumor and strange to say without the patients suffering any discomfort. However, 20 years

Megacolon is considered by European authors as a congenital disease and megasygmooid I believe with my colleagues here, is a consequence of fecal tumor which is at first

originally been congenital megacolons which, by the accumulation of excrement, at times in enormous quantities and the extraordinary muscular forces called into play to expulse it, has produced an entirely new condition in its muscular coat. The condition may be compared with the change produced in the normal individual who takes up physical exercise, gymnasium work, places himself on a diet in other words, trains and as a result becomes a giant in strength and endurance or to the development of the gastrocnemius of the cyclist. In the same way it is possible that the presence of fecal matter in the lower part of the colon and upper part of the rectum, produces in their muscular coat an excessive development with fibrous changes later on. Is it necessary that there be a con-

current.

In nearly all the cases which I have seen and examined (some 200) I have found on digital examination a narrowing in the rectum which corresponds to the peritoneal fold which exists normally around the first part of the rectum but only in front of the second part—that is to say in the line of division according to our anatomical nomenclature between the first and second part of the rectum (Perthes' fold). Above this fold the fecal matter becomes lodged and accumulates below this point it does not pass. Only twice have I seen fecaloma in the ascending colon and only once in the transverse.

Normally according to the best authors, the narrowest part of the large intestine is the first part of the rectum. This narrow

in Mendoza where as I said before it was also is much more common than in other sections

same in both cases, but I do not think this is sufficient reason to consider them as identical diseases. If these patients had had a megasigmoid since birth not one in a hundred would have reached the age of 45 which is the most common age at which fecal tumors are found.

For these reasons I beg rightly or wrongly to claim that there is not even a similarity between the two diseases. One is a disease of infancy the other of adults of middle age one occurs in the transverse and descending colon, the other in the sigmoid and rectum, only affecting the rest of the large intestine accidentally one never involves the rectum the other nearly always.

ETIOLOGY

Megasigmoid is, in all probability caused at first by neglect on the part of the patient but once dilatation of the sigmoid and superior rectum begins, there are other factors which help the disease and prevent its easy cure. It is not a congenital or neuropathic factor which produces more megasigmoids in the Argentine Provinces of the interior than in other places nor is it the water the difference in food or way of cooking, the grapes with their seeds the climate occupations houses ways of living or want of healthy exercise. There is no more colitis or enterocolitis here than in any other place. In these provinces there has been a notable absence of water closets. Up to 15 or 20 years ago a water closet with seat as ordinarily used today was unknown even in rich men's houses, schools, or public buildings. Outside the towns, the vineyard behind the barn the hen-house, or a clump of bushes were the places in which everybody was obliged to defecate, while in town a hole in and on a level with the floor in a little room at the far corner of the back patio was the universal water closet. This hole led to a cess pool.

In Europe and North America both in town and country there has always been the water closet on more or less modern lines. It is the same in Buenos Aires and the Argentine Provinces.

True it is that squatting down in this way was undoubtedly the original manner in

which primitive man defecated. Had primitive man fecal tumor? Probably no the fight for life more physical exercise less modesty and different food relieved him from the bothers of megasigmoid. After extended correspondence with colleagues from all parts of the world I have come to the conclusion that laziness and neglect united with the lack of private and proper places to defecate are the chief causes for the greater number of such cases in Mendoza.

Every physician and surgeon knows that one of the causes of chronic constipation is the failure to answer the call of nature at the moment. A person has a desire to defecate and for

at once

day

is no water closet within miles. If a young

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is formed the habit of constipation little by little it becomes worse until it is necessary to take medicine to help the intestine now tired dilated and beginning to form an elbow or kink at the site of Perthes fold in the first part of the rectum.

Squatting to defecate must, I should say increase these kinks when once they are started, the angles become more acute and naturally it is more difficult for fecal matter to pass while especially if there is constipation the intestine itself has to work harder and the muscular coat begins to thicken with the resultant hypertrophy and later fibrous degeneration.

If united to these logical common sense causes, the patient begins to take improper drugs (drastic cathartics etc.) he will get a dilated hypertrophied rectosigmoid more rapidly. If there has been a slight congenital defect in any case the pathological changes mentioned will come on still more quickly.

Once

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person if

pronounced, there is too little moisture in the excrement, the little pill or powder has been

of the sigmoid "sigmoiditis," and of the rectum "proctitis" and no one would ever think of calling them all one disease.

We have reached the era in which we study

"megacolon as different from megasigmoid"

Pary

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1884 Bristowe in 1886 Gaume in 1886 Fetterer and Middelfort in 1886 Hughes in 1887 Hirschsprung in 1888-96 Walker and Griffiths in 1899, Consetti in 1899 Fenwick in 1900 Duval in 1903 Arraga and Zubizarreta in 1905 Castro and Vidas in 1906, Bing in 1907 Rhane and Chaulet in 1908 Flaney in 1908 Gaujoux Chasagnat Girard Araux Alfaro Centeno, Aram Guinand and Cular in 1909-10 Grigore and Duval in 1913 Palma and Vidas in 1915 and more recently Manuel Galdós in his thesis of 1916. Megacolon in the Adult have all caused more or less confusion by trying to describe two distinct diseases under one name. I have not read the original papers but deduce this from different sources and especially from the Galdós thesis.

The majority speak of megacolon as a disease of children and not of adults. The ages in Hirschsprung's 10 cases were one of 1 one of 1½ one of 3 and one of 11 months. The rest were between 7 and 10 years (Galdós thesis).

Duval gives us the following statistics

was no distention evacuated their meconium only after 4 or 5 days thirty-nine cases in

tics, we are in frank opposition, as far as age is concerned, with the first symptoms of the disease, as in our nine cases, noted in the last 3 years, all were in adults and if we add

some more cases known to us, observed in other hospitals of this capital, I think we would come to the conclusion that this disease is evolutionizing, or that in our country at least, the disease is most frequently found in adults.

I do not believe that there is any "frank opposition" at all. What I think is that Dr. Galdós very cleverly describes megasigmoid with and without fecal tumor and that not one of his cases corresponds in any way to Hirschsprung's disease. If there is no name for the disease described by Dr. Galdós, then it is time to give it one.

If we study one by one the theories advanced by different authorities as to the pathogenesis of megacolon we will be convinced at once that different authors have described different diseases under one and the same name. In no other manner can I conceive the inconsistency of their deductions.

Some say it is found only in fetuses (Hermann) and children during the first 3 years of life (Hirschsprung) while Duval gives 47 cases at birth or in first months of life, with only 4 of his 52 cases in adults.

In the records of the hospitals of this city during my work here (20 years) there are histories of over 300 cases, all in adults and our city has a population of only about 350,000. This does not occur here only for Galdós reports the same findings as regards Buenos Aires as do also Drs. Vidas and Palma in their communications to the surgical society in that city.

There is another fact of importance and that is that in my cases I have seen only 1 per cent in which the fecaloma formed outside the rectosigmoid segment (2 cases in 200).

Probably the truth is that megasigmoid with fecaloma as we see it does not exist in other countries, or if it does exist it occurs only rarely while here with our relatively small population, congenital megacolon is very rare and almost unknown. The microscopical changes in the intestine may be the

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Once the megasigmoid is formed, it is only a single step to a fecal tumor even if the person is careful. One day the kink is more pronounced, there is too little moisture in the excrement, the little pill or powder has been

forgotten, or easier still, forgetfulness laziness, or want of opportunity has prevented the patient from emptying the bowels for 1 or more days, with the result that he now requires hydraulic power (enema) or manual labor (finger) to empty the bowel. We must also remember that in this stage, there is diminution of reflexes and that these persons have lost, in a great measure, the desire to defecate. This is one of the most notable features of these cases. Enormous masses of fecal matter weighing as much as 8 or 10

pounds (my youngest case was a girl of 20 my oldest a man of 85)

SOCIAL POSITION

It is found in all social spheres and without relation to occupation. We see more poor than rich cases. Fecal tumors are more common in the poor because the rich exercise more care to prevent their formation.

If a well-to-do person has once had a fecaloma he will take special precautions and really try to prevent the formation of others as a rule with success, but he never cures his megasigmoid. The poor and generally indolent, after repeated extractions of fecal masses, pay in the long run, for their ignorance and laziness, with their life. In both rich and poor megasigmoid shortens life.

PROGNOSIS

Megasigmoid without fecal tumor never improves without surgical intervention. It is not necessarily fatal at once, but without doubt, as I have said above, it shortens life. There supervenes stercoræmia, obstruction, occlusion, volvulus of the sigmoid flexure, gangrene of the same perforation — spontaneous or as a consequence of manipulations or drugs for the stasis — peritonitis from that rupture or from a perforation which may be microscopical. Let us consider these in their order.

Stercoræmia or copræmia. This with its sequelæ is the most common outcome of megasigmoid. The condition is always grave and often leads to a fatal result. The absorption from fecal stasis is pernicious to the

closely related to multiple and exaggerated inflexions of the sigmoid flexure." Going on he says: Stasis of the feces would be sufficient to explain the series of consecutive phenomena which we observe in this disease.

least in part dependent on the antrix, would be analogous to what occurs in the bladder when there is an obstacle to the free passage of the urine.

I believe Marian had seen and studied a few cases of megasigmoid and not of congenital megacolon. I agree in every way with his hypothesis, and if we find a slight congenital defect in Perthes' fold and much indolence on the part of the patient, we can completely fill the picture.

SEX

The division as to sex is about equal.

AGE

It occurs most commonly between the ages of 35 and 50, is never found in chil-

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really
pale,
earthy-colored skin he loses appetite and flesh and becomes so emaciated that he looks like skin and bone. The temperature varies from 35 to 41 C but is low most commonly it will vary many degrees in a single day. Weakness becomes extreme, the function of all organs is greatly impaired and death follows in spite of all treatment. While the fecaloma exists in the rectosigmoid as a rule the stercoræmia is not so grave, but the moment it is touched moved or broken up

extracted by finger spatula or other similar instrument sterile water medicated water or oils the patient grows worse fever comes on, and very often death results. In other cases and fortunately the most common after the extraction of the fecaloma for a few days the patient has low fever in the afternoon and 35 C in the morning. He takes castor oil and a daily intestinal wash by enema. With good food and care he is able to go to his home in 8 or 10 days only to return in 6 or 8 months, in spite of all care with a new tumor. In indolent and ignorant persons the return will be in 4 or 5 months. Some come to the hospital with the fecaloma and stercoema well developed. When this occurs, in spite of extraction iliac anus, appendicostomy, caecostomy etc. death is the general termination.

Obstruction. Total obstruction or occlusion of the intestine is very rare. Gases always pass and generally liquid feces. In fact diarrhoea is often one of the first symptoms noticed by the patient when he does not even suspect a fecaloma. The gases dilate the lumen of the bowel as the fecal bolus forms, and this is always smaller in diameter than the intestine for this reason. The occlusion is always due to kinks and without surgical aid the case terminates rapidly. A colleague claims to have relieved a case of occlusion by copious enema.

Volvulus of the sigmoid. I have operated on 9 cases of volvulus of the sigmoid. In two gangrene had already set in. If an operation is not performed in a few hours, death usually follows rapidly. In the cases I have seen, the megasigmoid takes a turn on itself the meso acting as the center of the circle. In 7 cases there was a half and in the other two a complete turn of the gut. In one of each, gangrene was already present. In all the cases the turn was to the right, the enormous sigmoid passing in front of the rectum. The external border of the sigmoid instead of being in contact with the left wall of the abdomen and occupying the left iliac fossa, was in the right iliac fossa and in contact with the right lateral wall of the cavity. The moment volvulus takes place there is acute and complete occlusion with the classical symptoms. There

is also an enormous tumor in the right iliac and lumbar regions which corresponds to the greatly dilated (with gas) intestine. Of my 9 cases only 3 were saved. I have seen at least 10 other cases of volvulus, but owing to their being admitted to the hospital in an utterly inoperable condition no intervention was attempted and seldom was an autopsy done.

Gangrene of the megasigmoid is often a direct consequence of the above and rarely is found after manual extraction of the fecal tumor. I have seen only one case from this latter cause without operation. It is of course, fatal.

Peritonitis from perforation is fatal with or without operation. Theoretically operating at once ought to save some cases but when this perforation occurs, the general condition of the patient prohibits intervention. The perforation is caused by gangrene in spots due to the incorrect use of instruments in the extraction of a fecaloma or possibly by the use of drugs, although I have never been able to prove this latter by autopsy.

Peritonitis without perforation. There is a fatal peritonitis which comes on without perforation.

very thin and is not caused by absorption from the diseased walls of the megasigmoid.

DIAGNOSIS

Usually there is no difficulty in making a diagnosis as the patient tells us what his trouble is. Occasionally however when there is diarrhoea he does not suspect an accumulation of fecal matter. The practical man should remember this and never fail to make rectal examination. He will feel a hard tumor in the left iliac fossa or in the middle line, varying in size according to the length of time it has been forming. The consistency of the tumor is pathognomonic. In no other tumors, is it possible to produce palpable indentations in the substance with the examining finger.

Another pathognomonic symptom found in fecaloma with megasigmoid was first pointed

out to me by Dr Alfred Metreux who has also had a vast experience with this disease. If in the presence of gases around the tumor between the tumor and the wall of the intestine the examining hand exerts pressure, the gas adheres to the tumor on slightly relaxing the pressure one can feel the return of the gas with abrupt separation from the wall—often producing a perceptible sound.

Perhaps this is Gernsey's sign mentioned in *Keen Surgery* page 655 vol iv chapter by Van Hook and Hanavel.

Without the use of the X ray the proctoscope, or the sigmoidoscope it is not so easy to diagnose megasigmoid without fecaloma. To give X ray specialists an idea, in one case afterward cured by operation, 4 liters of gum acacia water with 400 grams of carbonate of barium were injected into the dilated rectum sigmoid and colon without any difficulty and without the patient having the slightest desire to expel it.

I am of the opinion that as the greater number of

again seeing a fecal mass would not help either the diagnosis or the treatment.

tion, megacolon or Hirschsprung's disease a foreign body in the rectal pouch, uterine tumor pregnancy, ectopic gestation on left side with bleeding into the peritoneal cavity or tuberculous peritonitis with liquid. All may in certain cases, produce obstruction to the passage of feces and gas in all of them there would be more or less distention of the abdomen but it should never be difficult to

cases myself also saw at the maternity hospital and from colleagues. Preg-

nancy with megasigmoid is a very serious condition. I believe the best thing to do in such cases is to produce an abortion or premature labor the moment the diagnosis is made, and then treat the fecal bolus and its cause. In the maternity hospital they have had three deaths from this cause in the last 3 years. The number of mild cases here with accumulation of feces which yield to soap suds and castor oil treatment is larger proportionally than of those in the maternity hospital of Buenos Aires.

TREATMENT

Medical treatment alone is not only useless but it may cause great harm. In more or less than 60 per cent of my cases, the treatment found in the textbooks in the chapter on "coprostasis" is followed (*Keen* vol iv p 656) enemata using different solutions, a gloved finger dilatation of the rectum at Perthes fold, and straightening of kink just above will generally bring the examining index finger in contact with the fecal mass, which is broken up and hooked out with the same finger while the left hand is pressed on the abdomen to keep the bolus within reach.

Sometimes the fecaloma is so hard that the index finger cannot penetrate it. Then the handle of a large tablespoon, spatula, or best of all, one of the blades of a vesical calculus

with the finger and resist the temptation or advice to use any instrument blindly. Always remember that the second part and possibly the lower end of the first part of the rectum is thinner and weaker than normal, and that kinks are very easily wounded causing irreparable damage. I consider it much less dangerous to open the abdomen and attack the bolus *in situ* than to use any one of the instruments recommended for use beyond the reach of the guiding finger. Enemata, soap suds and olive oil, are used another method is trituration, and so on.

Sometimes the patient or surgeon gets tired out. Then the operation can be held over and continued the next day leaving a

good dose of oil in the bowel. It is surprising what can be done in this way. An injection of morphia just before starting or even rachis anesthesia is necessary in some patients. I always use novocaine in first or second lumbar space. The anesthesia makes it easier to push down the fecal masses within reach. The next day castor oil and daily intestinal washing with sterile water and common salt are given (7 1000). After a week in bed I give medical directions for preventing the formation of another fecal bolus, and discharge the patient. These are the benign cases, about 60 per cent, where the fecaloma has formed in the last part of the sigmoid and first part of the rectum where the mass is not very hard nor the disease of long standing.

In the cases in which the tumor is in the sigmoid and cannot be reached with the finger I give large doses of opium and bella-

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reach the mass with a finger and conclude the case as cited above. I have been advised to use the whole hand, but have never used more than two fingers. I believe the use of the whole hand be it as small as you like is very dangerous and have seen at least one death as an immediate result.

dominal route. The most common operation is extra intestinal (coproctomia) i.e. trituration of the fecal masses *in situ* without opening the wall of the gut. In cases where the abdominal walls are flaccid and thin and the fecal masses not very hard, it is possible under a general anesthesia, rachis or chloroform to break up the tumor without opening the abdominal cavity. I have been able to do this in five cases, once without anesthesia, with good success, but I cannot recommend it. I believe the open operation is less dangerous and more satisfactory in every way.

The open operation most commonly used by me is that known as Llobet's first performed by Dr. Andres Llobet about the year 1890 in the Rawson hospital, Buenos Aires.

I saw him do it in 1896. He used a mid-line incision, whereas for the last 18 years I have used a left mid rectus incision through the skin, then turn the rectus muscle inward, and open the abdomen underneath. No muscle fibers are cut. This, I think, makes a better and safer opening without danger of hernia later.

The incision should be long enough easily to admit the surgeon's hand at least 10 centimeters. I put compresses on each border of the wound—Moynihan's tetra clothes are very good—and introduce my hand in the abdominal cavity. Beginning at the lowest pole of the fecal bolus I break off pieces and push them

reached the mass is pushed on toward the lower rectum. Another piece is now broken off and the same process carried out until the whole hard mass has been well triturated and pushed on. The abdomen is then closed with special care to close the rectus muscle over the inner wound.

Should the patient have been vomiting I inject into the bowel somewhere above the trouble, 30 grams of sulphate of magnesium in saturated solution using a fine needle and putting a fine catgut stitch in the serosa for more surety.

A dose of castor oil is given the following morning and the treatment continued as in the simple cases.

I have done Llobet's operation 15 times with 3 deaths, one a week and the other a month after the operation both from septicæmia. I have seen more fatal cases in other hands, but statistics in this class of cases are confusing and misleading. If the bad cases which have been sick are operated on, after trying perhaps for weeks, to get the feces out by natural outlet, more deaths will result than if only good cases are operated on. Again if an attempt is made to break up very hard masses through an enormously dilated and diseased intestinal wall, and trauma and hemorrhages are produced with perhaps gangrenous patches following the patient is very likely to die. Perhaps the less said about statistics the better. Moynihan

said they could be made to tell anything "even the truth which is better than another great man who said they are lies—d—hes. I have done an autopsy on one of these cases and found considerable extravasation of blood in the intestinal wall, undoubtedly produced by too vigorous handling.

During operation I have often noticed slight hemorrhage into the bowel wall which formed small hematomata but which have never to my knowledge, interfered with a good result.

To conclude, Llobet's operation of coproctica is very good safe and convenient when done without undue vigor in handling the intestine and in cases which are at all operable.

Three times I have opened the abdomen as described with the intention of doing a Llobet and have found a mass so big and hard and with a chronic megacolon and consequently a diseased fibrous wall, that I decided to extract the tumor *en bloc* by opening the intestine. I was afraid that gangrene would follow or serious hemorrhage into the intestinal wall produced by the forces necessary to break up such a hard bolus. In all these cases the fecaloma was situated in the sigmoid and encroached on the first part of the rectum. It was the shape of a football and

outside the abdominal wall. The other was done within the wall. The following technique was used: first the distended intestine was brought out of the abdominal cavity, teta cloths were placed around it and the enormous tumor within. Second an intestinal clamp, with rubber-covered blades was attached above and below the fecal mass to prevent the escape of fluids. If there is any difficulty in placing the clamp a piece of gauze may be tied around with the same

the mass which is easily delivered into the hands of a nurse. This maneuver is singularly easy if the incision has been properly made, from 22 to 25 centimeters long in my cases there is no trouble at all and no liquid escapes. The cavity is now wiped out with care and the suture begun. All the coats of the bowel are from 5 to 8 millimeters thick. The mucous coat is easily separated and seems bigger than the fibromuscular coat in which it has the appearance of hanging. Although thickened this coat was friable as in a normal mucosa. The serosa was not changed as the others but was very adherent to the muscular coat, which made the last line of sutures more difficult. Note that the greatest pathological change takes place in the muscular coat, making it thicker, tougher and decidedly more fibrous.

I used the following method in suturing this long intestinal wound: first, suture mucosa with No. 1 catgut using a Dupuytren con-

simple continuous catgut suture of serosa over silk suture, letting the needle go into the muscular coat. fourth, place another continuous catgut Dupuytren suture of the serosa inverting sufficiently to hide the last line. The suture of such diseased bowels must always be done with especial care to prevent accidents when the patient has the next bolus which unless something else is done later on is a certainty.

while one died a month later as a result of a second operation of which I will speak later.

Formerly every 2 or 3 months there would be admitted to the hospital a case of fecal bolus with accumulation of feces occupying all the large intestine. Stercoraria was well

single stroke and successfully using it as if the extraction of the tumor without having to touch it. Two hands are then placed under

stercoraria any operation gives 100 per cent

mortality. What happens is that once you move or try to move the masses of feces with any liquid the absorption into the general circulation is greatly increased and death comes more rapidly. They are really poisoned by their own excrement and cannot withstand even manual extraction. For some years I have given up trying to relieve hopeless cases by surgical means.

Let us consider the cases from which we have removed the fecal masses and saved the patient for the moment from death by self-intoxication. Have we cured him? No. What is to be done? This is the problem. About 1913 I studied seriously all the literature obtainable and could find nothing to meet all the conditions present. In the hospital we tried all the short circuit operations and also total colectomy following the technique described in the textbooks for them. The Lardenois technique for total resection of the colon is perfect to my mind as is also that of Sir Arbuthnot Lane, but neither will answer in these cases. The diseased intestine

and it
which
attacks
themselves have no resistance so far as operations which require a general anesthetic are concerned. They are not like megacolon (Hirschsprung) or chronic intestinal stases (Lane); surgically they resemble cancer of the upper rectum more than anything else generally written about. I believe that in many cases the

would be brought down and passed through the second part of the rectum to the sphincter ani. But there is a great difference between

tion or else the case is inoperable (metastasis) while in megarectosigmoid the patient as a rule is a very bad subject for any operation. His feces have poisoned him, his flesh heals badly and his intestine not at all. You can stitch with care, use adjacent serosa or make flaps of it, use the surrounding connective tissue, put a rubber tube high up in

the bowel at a great distance from the anus the utmost care can be exercised throughout—and the result is the same.

I have seen more than one case in which an anastomosis had been done, and the patient was considered cured and out of danger as long as 20 days after operation, who suddenly developed an acute peritonitis, and postmortem examination showed non-union causing leakage of intestinal contents.

After bitter experience with a dozen different operations for megasigmoid with continual formation of fecal bolus, I finally developed a technique which I have used in a limited number of cases—one which I believe to be original. It is analogous to Moynihan's operation *gastroplication* (Keen vol III, p. 946) where I confess I got the idea. It should be called *sigmoidrectal plication* or *enteroplication*.

I have done only 5 cases as yet and there was but one death from an accident not due to the operation. The four successful cases are all in better general health and by laxatives and enemata which before operation were ineffectual they can now prevent the formation of new fecaloma. I am quite convinced that no plication operation is perfect in results, but in patients with megarectosigmoid I believe it to be the best and especially as the general health of the majority of the patients prohibits a more radical operation without an enormous percentage of deaths. Any surgeon interested will readily understand the technique I use by referring to figure on page 946 of Keen vol III. A nurse passes a rubber tube, an inch in diameter and fairly soft into the rectum after rachis anesthesia with 15 centigrams of novocaine (*segun arte*). The abdomen is opened through a left mid rectus incision and the rubber tube passed into the healthy colon; the surgeon guides the tube through the dilated rectosigmoid. This tube is used as a guide in establishing future lumen of intestine and its use makes the plication much easier. I use silk for the first lot of sutures and apply them exactly as in Moynihan's *gastroplication* operation, about 1 centimeter apart, letting the needle go well into the muscular coat but never into the mucosa. With the fine point

of a thermocautery I now touch between stitches going fairly deep. In my later cases I have used the thermocautery before putting in the first row of silk sutures. The object of this is obvious. When all the stitches are in place the tying is finished before I put in the second line of continuous simple catgut suture which covers over the silk knots. Finally I make a continuous Dupuytren catgut suture of the serosa alone which covers in the second line of catgut. The tube is with drawn and the abdomen closed.

In my five cases the line of suture varied from 10 centimeters in length to 32 centimeters. All included the greater part of the first portion of the rectum. The longitudinal band of the sigmoid serves as a guide to the center

VOLVULUS OF THE SIGMOID

few of the authors have seen these cases for themselves but just go on copying the works of others. For example in the presence of gangrene we are told to cut off the intestine and bring the ends of the healthy colon out of the abdominal wall as is done in the Mikulicz Brunn's operation for cancer of the

rectum later closing the new anus by gradually uniting the ends with a special clamp and finally closing the abdominal wall. These authors forgot that this is quite impossible here as the gangrene extends to the twist which in all my cases was so low down as to make the healthy rectal end too short to reach outside the abdomen. The upper end can be easily detached and brought out, but it is practically impossible ever to do as advised. The best treatment is to bring out the colonic end and close the rectal end—a future operation for uniting might be done. If the patient is in very good condition the colonic end might be brought down to the rectal pouch or even lower and an artificial anus need not be made. If there is no gangrene the operation can be best carried out after reducing the volvulus, as recommended by Braun

PERITONITIS

Whatever the cause peritonitis is fatal in these cases and surgery will not only not relieve but in many cases hastens the fatal outcome. Bitter experience has taught me this.

RECURRENT DISLOCATION OF THE PATELLA

WITH REPORT OF SIXTEEN CASES

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A NUMBER of factors play important rôles in recurrent dislocation of the patella. Trauma is unquestionably important and frequent in the initial displacement. It is less important in recurrences. There is an inward twisting at the knee together with a blow or pressure on the outer side of the leg and associated with this is always a strong sudden contraction of the quadriceps muscle.

Recurrent outward displacement of the patella is a lesion peculiar to young girls during their growing period and tends to persist into adult life. Usually the first displacement occurs between the ages of 12 and 18 years and this initial displacement is more painful and disabling than subsequent ones. Injury and excessive knock-knee are the chief etiological factors. The displacement occurs with the strong contraction of the quadriceps muscle usually early in the act of knee flexion, since in ten to twenty degrees flexion the femur easily rotates inward on the tibia and an exaggeration of the knock-knee takes place.

There is a long line of contributing factors which aid these recurrences. Among these are found so many common postural conditions affecting the knee joint that it seems improbable that they alone can be the exciting etiological factor. The most constant contributing factors are:

1. Heredity. Abnormal mobility and laxity of the knee associated with poor general posture are occasionally hereditary peculiarities.

2. Weakness of the quadriceps extensor muscle with resultant laxity of structures about the knee joint.

3. Static defect. Knock-knee has been long associated with this lesion but the frequency of knock-knee and the infrequent

number of slipping patellae rather weaken this as a strong etiological factor. It is necessary that the outer ridge of femoral condyles be poorly developed. Probably all postural defects act as factors only secondarily through this associated developmental defect.

4. Flat feet give static strain on the inner

synovial membrane and capsule both usually due to chronic synovitis. The distention of the joint causes stretching of all the retaining structures.

5. Imperfect development in size and shape of the patella in relation to the external condyle will allow the patella to slip more easily to the outer side.

6. Imperfect development in the size and shape of the external condyle is important. Grazer (6) did a supracondylar osteotomy in one case in which he felt this faulty relation required correction.

That the external condyle is occasionally underdeveloped and does not thereby offer a bony resistance to the displacement is acknowledged by Albee (2) who has used a bone graft to correct this anatomic defect tilting the outer rim of patellar surface of the femur to block the lateral thrust of the patella.

Of the above lesions, the lateral tendon attachment and the faulty condylar development are the most constant pathological findings. Static defects and capsule relaxation are important in releasing the normal factors restraining displacement.

DIAGNOSIS

The patient usually makes the diagnosis giving the history of (a) severe initial displacement, (b) recurrences, (c) constant fear



Fig. 1 and Jones knee brace with pad attached

let displacement recur—with resultant inactivity.

The initial attack is most painful. The knee is flexed and the patella is found on the outer side of the condyle. Following reduction, especially in the initial attack an acute synovitis develops.

TREATMENT

A. Acute attack. The treatment of the initial attack calls for immediate reduction of the displacement. This can usually be accomplished by sudden extension of the leg with pressure of one hand against the outer condyle pushing the patella to the median line. The injury calls for immobilization by means of plaster for 3 weeks, and were this done following the original injury recurrences would be less frequent.

B. Recurrent attacks. The treatment of recurrent attacks may be divided into (1) supportive (2) stimulative (3) correction of static errors, (4) operative.

1. Supportive treatment in the earlier attacks usually gives the patient confidence. This may be obtained by the use of a split knee cap with a crescentic pressure pad to aid in holding the patella in place or it may require a Jones knee brace with a pad attached (Fig. 1). These should not be used without stimulative treatment and if used too long are apt to cause varicose veins and

— — — — — straps
of (a)
degree
(b) ex-

ercises to strengthen muscles and ligaments and to develop postural strength.

3. The correction of static errors is most important. In many of these cases there is marked abduction of the feet (weak or flat feet). This should be corrected in all cases by the Whitman type of foot brace. This correction counteracts in a mild degree a moderate knock-knee. In spite of conservative measures, the knee frequently remains not dependable. In such cases operation should be considered.

4. **Operative methods.** The operative methods are (a) capsulorrhaphy (b) transplantation of part of patella tendon (c) transplantation of bony insertion of patella tendon.

Capsulorrhaphy. Alone this operation has been a distinct failure. In conjunction with other procedures, it might be used, provided the length of time of the disability has been such as to cause the inner capsule to relax markedly and secondary deformities to develop. The authors have never done this, however either alone or in conjunction with the following method.

Transplantation of part of patella tendon. In the early cases of the authors, this procedure was followed, all cases showing good results. The objections, however are—

1. Twisting of half of the patella tendon, which although bringing more tautness between outer side of patella and external condyle, is open to the danger that relaxation of this tendon may take place. In general, a muscle cannot function in two places at once.

2. Splitting of tendon, sewing and handling ends cause them to fray and make it impossible to secure a clean, firm anatomic attachment, whether subperiosteal or into a bony cavity. The patella tendon is surprisingly thin and on account of this tendency to fray it is almost impossible to suture. We have therefore, come to use only the bony transplant operations.

Technique of transplantation of patella tendon (Figures 3, 4, 5, 6 and 7). Usual two-day preparation. Tourniquet

— — — — — made from the inner

don is exposed to view. AN IDEAL ISSUE



Fig. 3. Dry dressing, showing bone of incision.

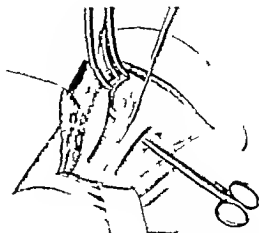


Fig. 4. Outer half of patella tendon is slipping over patella.

through the thin fibrous covering of the tendon which is then gently retracted and preserved as far as possible for resuture (Fig. 4). An incision through the center of the patella tendon is then made from the patella to the tubercle (Fig. 5) cutting it off at this point on the outer half. This half is then quilted with chromic catgut No. 3, turned in under the inner remaining half and sutured in a bony groove as far as possible to the inner side on the inner face of the tibia (Fig. 6). The periosteum is then pulled over this insertion and the thin capsule pulled over these tendons (Fig. 7). The skin is closed with continuous catgut No. 2. Dry dressing is applied followed by plaster from the toe to the groin. This plaster remains on for 10 weeks and is followed by gentle passive movements, baking and massage of thigh and calf and increasing use (See report of cases by authors 1, 2, 3, 7, 8 and our cases 12, 14 and 15.)

Transplantation of the bony insertion of the patella tendon (Figs. 3, 8, 9). This procedure

A long curved incision is made halfway between the inner condyle and patella curving over the tibial tubercle. The skin wounds are clamped off with towels and the patella tendon with fascial covering is exposed. A light incision is made through the fascia from the inner border of patella to below the tibial tubercle; this covering is dissected quickly clamped and retracted to right and left to be resutured later over the tendon. A wedge of bone the size of a thumb-nail is then removed including the attachment of the inner half of the patella tendon. The patella tendon is split in half and a similarly symmetrical bony wedge removed from the inner surface of the tibia at a point that will take the tendon bone graft. The bony transplant is forcibly wedged into its new bed, the periosteum sutured with fine chromic gut, the light fascial covering resutured and the skin closed with continuous catgut No. 2. Plaster is applied from ankle to groin and should remain on for 10 weeks. Following this, gentle motions, use and massage should be conscientiously carried out.

CASE ABSTRACTS

CASE K. A. age 19 first seen March 1915. The left knee cap had slipped out of place 3 or 4 years ago following injury to knee. Four months later

Since
am.
Any
very

from literature 4, 8, our cases 13 and 16.)

Operative technique Two-day preparation
Tourniquet

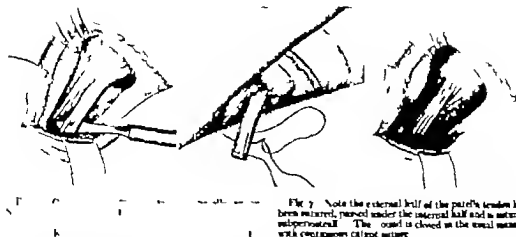


Fig. 7. Note the external half of the patella tendon has been sutured, passed under the internal half and is sutured subperiosteally. The wound is closed in the usual manner with continuous catgut suture.

apprehensive manner by the patient, especially when it approaches the external condyle. Slight protrusion of both feet. X-rays of knee are negative.

Diagnosis: Slipping patella, and operation is recommended.

Operation: Transplantation of the outer half of

very painful. Following fall, 3 years ago, right knee has been bruised in motion. Physical examina-

tion of patella on motion.

Diagnosis: Slipping patella, and operation is recommended.

Operation: Transplantation of body insertion of patella tendon into inner side of tibia.

Result: Good function, no recurrence. January 1931. On the whole it seems to be greatly im-

proved.

Operation: Transplantation of the outer half of patella tendon into the periosteum of the tibia.

Result: Perfect function of knee. No recurrence.

No surface hurt.

Diagnosis: Slipping patella, and operation is recommended.

recommended.

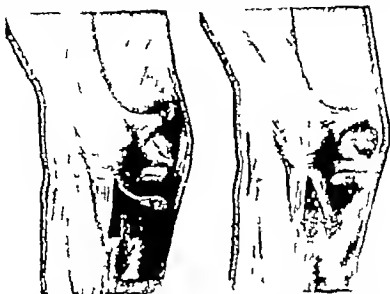
Operation: C. pseudarthrosis (by another surgeon).

Result: (?) Case has been lost.

C. 6 W. T. first seen July 1906. Four years

(3 1/2 years)

CASE 4. I. H. first seen February 1917. Since childhood has had a weak right knee which often twisted without warning, causing patient to fall to the ground, after which knee would be swollen and



Figs. 8 and 9. Showing method of (transplanting bone) insertion of patella tendon

internal condyle is prominent. The leg cannot be fully extended and there is slight rotation under the patella.

Diagnosis Slipping patella and operation is recommended.

Operation Transplant bone of the outer half of the patella tendon into perosteum of tibia.

Result Not satisfactory. Previous operation did not accomplish all that was desired so about 8 months later rotation osteotomy was done just above adductor tubercle the condyles being placed in their normal relationship. This operation resulted in normal function of the knee.

CASE 7 B. D. first seen July 1908. Knees have always turned in. Left knee has given way under

except for local condition. Motion of knees are normal. On complete flexion the patellae move toward outer aspect of knee. Patient has a slight knock knee.

Diagnosis Slipping patella and operation is recommended.

Operation Transplantation of the outer half of patella tendon into perosteum of tibia.

Result Normal function. No recurrence to date (7 years).

CASE 9 Mrs. T. C. h. first seen March, 1911. Patient has had trouble with her feet for years. At

last visit usual and knee-caps she had been wearing.

Diagnosis Slipping patella.

Treatment Capsulorrhaphy (by another surgeon).

Result Failure.

CASE 10 V. B. first seen August 1914. About 10 years ago left knee-cap slipped out for the first time. The

valgus. Four

recommended.

Operation Transplantation of outer half of patella into perosteum of tibia.

Result Immediate result good but patient has since disappeared.

C. C. T. M. D. M. D.

condyles
from the
Patella

low on the middle

Diagnosis Recurrent dislocation of left patella and ruptured internal lateral ligament.

Treatment Light plaster cast. Operation later.

Result Good function.

SUMMARY OF AUTHOR'S CASES

| No. | Names | Date First Seen | Original Injury | Cause Disease | Treatment | Result | Remarks |
|-----|------------------------|------------------------|---|----------------|--|--------------|--|
| 1 | E. R. Mrs. R. | Mar. 1915 Aug. 21 | Single trauma Dislocation patella | Weak foot ? | Tendon transplantation Tendon transplantation | Good Good | No recurrence No recurrence |
| 2 | T. K. | Apr. 1918 | Overexertion | ? | Tendon bone from transplantation | Good | No recurrence |
| 4 | I. H. | Feb. 1917 | T. ad. | ? | Tendon bone from transplantation | Good | No recurrence |
| | A. C. W. I. | June 1916 July 1916 | Overexertion Overexertion | ? | Capsulorrhaphy Tendon transplantation | ? | Eight months later secondary rupture and capsule placed around patella Good result, pain immediate relief |
| 7 | B. D. | July 1916 | Motor | - | - | - | Good |
| 8 | J. M. Mrs. T. C. A. | Nov. 1916 Nov. 1916 | Motor Motor | - | - | - | No recurrence Five months later secondary rupture and capsule placed around patella and capsule placed with out transference |

11

CASE 11 Mrs. T. S. M. first seen October 1910
For the last 24 years both knee caps have been

Diagnosis Slipping patella, and operation is recommended

Operation Transplantation of the bony insertion of the patella tendon in tibia

Result No recurrence excellent function, no subjective symptoms

CASE 12 Mrs. A. B. first seen October 1910
Both knee caps are causing swelling of the lower leg

Diagnosis Slipping patella (double)

Treatment Conservative Operation later

Result No improvement Refuses operation and still has recurrent displacements

CASE 13 E. H. T. first seen October 1914

CASE 14 L. A. S. first seen October 1915

Diagnosis Slipping patella, and operation is recommended

able than normal

Diagnosis Slipping patella, and operation is recommended

Operation Transplantation of outer half of the

increase in surface temperature Complete extension of knees possible with difficulty Both patella ten-

recommended

Operation Transplantation of outer half of

case not of one of the kind now being reported

low the anterior surface of the external condyle to be placed

recommended

Operation Transplantation of bony insertion of patella tendon

Result Excellent function

BIBLIOGRAPHY ABSTRACTS

Goldthwait in February 1904 reported a case of slipping patella with the following results: cases where tendon was transplanted with its bony insertion with good result; 5 cases where tendon was transplanted into periotarsus with good result; cases where tendon was transplanted into periotarsus, not good result; 3 cases where capsule was quilted with not good result.

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re-furnished

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replaced

GRIENER in *Deutsche Gesellschaft f. Chir. und Zentralbl. f. Chir.* July 6, 1904 report case where outer condyle of femur stood considerably farther backward than inner condyle when leg rotated outward. He operated by doing suprapatellar osteotomy of femur and twisting the condyles so as to bring outer portion forward and inner condyle farther back.

Albee in *Orthopedic and Reconstruction Surgery* describes his technique as follows:

A semicircular skin incision is made at the outer border of the patella sufficiently long to reach below the tibial tubercle and 1 point above the external condyle. A oste-

- 3 (
- 4 1
- 5 AUG 1899, Jan
- 5 KANDLER *Zentralbl. f. Chir.* 1904 Mar 5
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AN ENDEAVOR TO EVALUATE CHRONIC SEPSIS IN PREGNANCY

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PART I

THE study of acute infectious disease

safely to describe the type of the invading organism. In most of these disease entities, the moment of invasion is a silent moment

clinical entities. In some cases the invading organism is known; in others it is unknown. The definition of the clinical entity is not however dependent on the isolation of a definite bacterium.

In the following paper I wish to describe a clinical entity apparent in pregnancy which has chronic sepsis as its etiological basis. This clinical entity instead of describing a definite bacterium shows plainly that it is produced by many different kinds of bacteria. It is the singleness of the principle involved which demonstrates the entity. The manifestations like the bacteria involved are multiple.

In the study of disease the importance of the point of entrance of bacteria and the moment of invasion has been emphasized by MacKenzie in his book on the *Failure of Medicine* (1). With the knowledge we have of the damage done to the human system by the invasion of acute infections, it is difficult to understand why the importance of an area of chronic infection however small is so little appreciated. If we regard an area of chronic sepsis purely as a point of entrance of bacteria within the system the sequences which may follow can not be less harmful than those from the point of entrance in an acute invasion, provided it is admitted that the bacteria contained in the area of chronic sepsis can migrate to other parts of the body. Then the analogy becomes complete. Acute tonsillitis never killed any one but it is the endocarditis or what not, that is the sequence

of the tonsillitis which kills. Just so the chronically infected tonsil or the abscessed tooth root does not kill but in its primary element as a point of entrance of bacteria it has the same potential characteristics. That bacteria contained in these areas of chronic sepsis do migrate is too well settled today to warrant further discussion.

It is my belief that obstetrics offers a better opportunity for the study of the effects of chronic sepsis than any other branch of medicine. This belief is based on the conception that the processes involved in pregnancy act as the most severe physiological function test that the human system has to endure. As such it tends to bring out the previously existing weak points in the individual. It uses up a part or the whole of the reserve power of the different organs involved and thereby shows the defective organ when the reserve power of that particular organ is exhausted. I believe that the additional load of the pregnancy actually lowers the resistance of the maternal organism, if it is attacked by infection and that the effects of chronic infection already in the system are made more evident as a result of this reduction of the total bodily resistance. The high mortality among pregnant women in the influenza epidemic is consistent with this conception. The aggravation of many previously existing pathological conditions is also consistent.

With this conception as a foundation, already existing infection in the pregnant woman becomes of importance. Not only is it important in the individual pregnancy but also in the patient's whole obstetrical history. In drawing a conception of the effects of chronic sepsis in pregnancy it is necessary to conceive of a clinical entity which covers months and years, since the etiological factor is often present for a like period of time. A great diversity of manifestations is likewise to be expected. In both of these characteristics the analogy to syphilis, the best under

stood of the chronic infectious disease entities, is apparent.

Syphilis shows us that the chronic infecting agent can be persistently present in the system without causing symptoms of sufficient seriousness to send the patient to the doctor yet this same infecting agent can show damage in some form which is often apparent only in pregnancy. The baby born with spirochetæ in its liver received those spirochetæ from its mother's blood stream and it doesn't matter whether the mother had the symptoms of syphilis or not.

What are some of the more common complications which confront the obstetrician? Toxæmia of pregnancy in its many forms is by far the most common and most important. Of this I shall speak later. Breast abscesses non suppurative mastitis, pyelitis, phlebitis, with an occasional pulmonary embolus are ever present dangers which must be constantly kept in mind by the obstetrician. These complications all have the common etiological basis, infection.

When it was first discovered that the typical case of puerperal septicæmia was due to extraneous infection that is that the infection was introduced at the time of delivery the opinion naturally arose that all other infectious complications were the result of infection introduced from outside. As a sequel it has been universally believed that the breast infection was the nurse's fault in not keeping the nipples clean, that pyelitis was due to an ascending infection from urethra to bladder and thence along the course of the ureter to the pelvis of the kidney and that phlebitis was thought to be universally due to parametritis with direct extension to the femoral vein.

There is much evidence available which tends to qualify this former conception if such cases are viewed from a broader standpoint. If we consider breast abscess as an infection of hæmatogenous origin and regard this abscess merely as one manifestation of a larger entity chronic sepsis the truth of the situation is more apparent. If we cease to regard the breast abscess as a complete clinical entity and view it as a symptom, a manifestation of the presence of occasional

septic emboli in the blood stream it will soon be apparent that many such cases will show other evidences of septic emboli or the effects of chronic sepsis in the system.

For instance a patient had several non-suppurative mastitis attacks in her first pregnancy and these were repeated in her second pregnancy. She gave a history of frequent tonsillitis and had several attacks while under my charge. Physical examination showed two large diseased tonsils and a mildly decompensated mitral stenosis. There was a mild toxæmia present at the end of her first pregnancy.

The chronic endocarditis speaks for blood borne infection in the past, probably originating in the tonsils and the repeated breast attacks in two pregnancies (always associated with high fever and malaise) point to blood borne infection at the present time. The toxæmia is also a part of the picture.

Phlebitis, which is essentially a periphrastic process resulting in thrombosis, is seldom unattended by other manifestations of hæmatogenous infection, past or present.

Pyelitis has been an ever-increasing complication of pregnancy in my own experience and it has been impressive to note the number of such cases which present the history of pustular eruptions or furunculosis both before

principles involved in the larger entity of which a focus of chronic sepsis is the continuous etiological factor.

With the conception clear in mind that a focus of chronic sepsis does throw off bacteria into the blood stream not as a bacteræmia or septicæmia, but as a series of bacterial emboli, it will be seen that the placenta, an organ constantly bathed by the maternal blood, is continually exposed to attack by these septic emboli, and therefore becomes an organ of great importance.

As a removable organ, it should present on its surface a record of damage done to it by

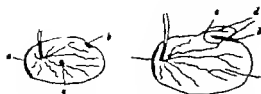


Fig 1

Fig 2

these septic emboli and these points of damage should have a chronological relationship to clinical evidences of acute infection elsewhere in the body. In a previous paper (2) I have submitted evidence that the infarct is infectious in origin. I also maintain that there is a chronological relationship between the time when the infarct is originated and the activity of sepsis, either acute or chronic elsewhere in the body. This point is so important that I desire to be more explicit.

The method of determining when an infarct originated—that is, the time in the pregnancy can be determined in the case of infarcts

center. During the growth of the placenta an injury to the edge (infection followed by localized thrombosis) stops the growth or enlargement of the placenta at the point of injury. Such a process results in an asymmetrical placenta. In the asymmetrical placenta the edge farthest from the base of the cord is the last placental tissue grown. In the normal placenta the whole circumference is the last tissue produced. In the asymmetrical placenta, by dividing the distance from the base of the cord to edge of placenta farthest away the radius of a circle is found which would roughly represent the circumference of that placenta at 4 months.

The position of the infarct within or without this circle will determine roughly the time in the pregnancy when it began, if it is on the edge, or when it is in the middle the time after which it must have occurred.

later. An infarct occurring at point figure 1 b could not injure the placenta at that point

until the placenta had enlarged to that size which would form a circle around it.

from 3 months on.

By observing the course of the blood vessels on the fetal surface of the placenta, this method of growth of the placenta and the results of infarct formation on its edge can be demonstrated.

months and stopped further enlargement along the edge. Figure 2 b infarct formation on edge of placenta shortly after the middle of pregnancy. Figure 2 c a tongue

changed its course to supply the tongue of placental tissue c showing that placental tissue c grew subsequently to the infarct formation at b. Figure 2 c enlargement of the placenta in asymmetrical formation to compensate for its inability to enlarge concentrically at region a.

This case demonstrates that infarct formation when on the edge of the placenta stops the growth of the placenta at the

CASE 1. Primipara. Acute appendix removed August, 1918. Last period March 3, 1919. On April 1, 1919, there was slight bleeding which continued for several days. May 2, 1919, nausea

torus.

Vomiting continued until motion was felt. Occipital headaches, spots before eyes and oedema of legs until the seventh month. October 28

septic tooth extracted November 10 no more specks or headaches. Sleeps better, feels better, edema less. December 6 normal delivery of 7-pound baby. There was no rise of blood pressure or urinary disturbance throughout pregnancy.

The stirring up of the septic tooth chronologically preceded the bleeding in the early months of pregnancy and with the infarct formation at *a* Figure 3. Infarct *b* Figure 2 was formed also coincident with the attack of tonsillitis in August. No external bleeding however resulted. Toxic symptoms subsided after extraction of septic tooth. For other

here on account of the similarity in the etiological factor.

CASE 2. A primipara had her last period on Decem-

tooth was extracted. Symptoms during February. Three severe headaches associated with specks before eyes and blurred vision, nausea without vomiting. March 1, 1921 these symptoms stopped suddenly. March 16, 1921 first seen by me at which time she felt perfectly well. Vaginal examination revealed a soft uterus still in the pelvis in good position but not as large as the date would signify. March 23, 9. Miscarried and was curetted at her home by another doctor who told her that he thought the pregnancy had been dead some time. Her tonsils had been removed in 1910.

Patient was a trained nurse and her observations reliable. The sequence of events in this case is most striking. The stirring up of the focus of sepsis undoubtedly threw bacteria into the blood stream which reached the placenta, injuring it sufficiently to terminate the pregnancy gradually. The cessation of symptoms suddenly about March 1 probably marks the time of the termination of the life of fetus. I have seen a similar event in two cases of death *in utero* in a severe toxemia at 7 months. The miscarriage did not represent the time of the termination of the pregnancy but merely the casting off of the already dead fetus.

CASE 3. A primipara came in for treatment of acute tonsillitis stating that she was 3 months

drained spontaneously several times, followed in one week by uterine bleeding at the second month. Left femoral phlebitis also appeared on the tenth day after delivery with an alebolic convalescence up to that time.

These two cases are cited to show the sequence between infection in throat and uterine hemorrhages. Both of these cases occurred previous to my association of these events with infarct formation and the placentas were not observed when they were delivered at full term.

miscarriage and curettage ten days later.

In this case the damage to the placenta by the infection was sufficient to terminate the pregnancy.

CASE 6. A primipara with large tonsils (right larger than left) and one demineralized tooth with history of abscess on it. She had uterine bleeding at 5 1/2 months. Placenta was of the asymmetrical type with cord attached near edge and infarct formation along this near edge.

No clinical event associated in her memory. Patient not seen until eighth month.

CASE 7. A multipara showed one day 6 weeks from her last

pregnancy.

Although there was no clinical event associated with the bleeding in this case her past history with the heart damage shows evidence of association with the factor as recorded by the shape of the placenta.

CASE 8. A multipara whose last period was July 4, 1920 had a very severe cold on election day November 3, 1920. Her placenta showed a large

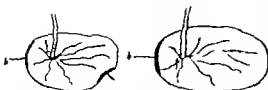


Fig 3

Fig 4

infarct on the edge at about 4 months. No history of bleeding.

Placental infarct. Fig. 4.

This case raises the question which was the cause of the trouble. The severe cold was associated with the infarct in her last pregnancy without any septic teeth being present. The activity of the tooth in association with the vomiting in the first pregnancy and the first miscarriage tends to connect these events with the tooth. The second miscarriage might well have come from the clipped tooth, which are notorious sources of chronic sepsis. The case demonstrates one important principle in the relation between treatment and results. The eradication of chronic sepsis must be complete to get results.

March 6, 1920, complaint, cannot get pregnant. She had a mild leucorrhoea which responded to

Pregnancy took place in September, 1920. During latter half of October the remaining dead tooth was closed after treatment. December 2, 1920, had considerable pinkish mucus from vagina followed by a thick mucoid leucorrhoea.

The small full-term baby which died of hemorrhagic disease followed by a miscarriage was all subsequent to the history of the abscessed dead tooth. The cessation of the pimples on her face after the removal of

as it is associated in time.

Here is a case where the severe infection nearly terminated the otherwise normal pregnancy as evidenced by the false labor which followed. The reason is plain when we find the whole circumference of the placenta as it was at the time of the infection, infarcted. The only thing that saved the pregnancy was the persistent growth of the placental tissue, not from the injured edge but from the maternal surface within the edge which

formation

CASE. Another case of severe bronchial infection was followed by pinkish leucorrhoea.

and it was there.

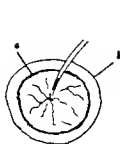


Fig. 5

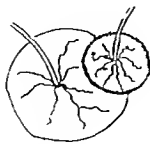


Fig. 6

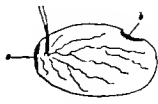


Fig. 7

CASE 13 First seen in second stage of labor Primipara Last period October 13, 1920 Appendectomy in 1914 Frequent tonsillitis

During first week of March, 1921 patient had influenza attack She was in bed 3 days at the end of which time she began to have a pinkish watery discharge This was about 4½ months This watery discharge later colorless, was continuous until June 9 (7½ months) when labor began She was delivered of twins First twin weighed 4 pounds, second 2 pounds Second twin died in about 30 minutes First twin died on third day of hemorrhagic disease It was not necessary to rupture the membranes of the second twin

The difference in size of the two twins was apparent from the size and condition of the placentas The placenta feeding the second twin was only one-third of the total surface and this smaller placenta not only had its whole margin infarcted but was thoroughly studded with infarcts There were a few small infarcts in the middle of the larger placenta

In this case the inflammatory reaction of the infarct formation associated with the influenza attack undoubtedly resulted in the rupture of the membranes of the upper sac containing the second twin This explains the continuous hydromenorrhea for 3 months and the absence of the sac of liquor when the second twin was born The injury done to this one placenta undoubtedly accounts for the smaller size of the second twin

uncommon for a woman with no signs of syphilis and a negative Wassermann to have a syphilitic baby The spirochaetæ in the child's liver have got to come from somewhere but if we conceive of a focus of spirochaetæ somewhere in the mother which threw off a single embolus which landed in the placenta of one twin and not in the other and no more emboli followed we have a much more reasonable explanation of the case than the one offered and one which is more consistent with other evidence (See Case 18) The infarct is a localized point of infection and as such has the same characteristics as the hematogenous one It is not the result of a bacteræmia or septicæmia, otherwise the

was damaged on the whole of its circumference with the result that it was prevented from enlarging to compensate for the needs of the growing foetus Its surface was also damaged reducing the total available feeding surface of the placenta Hence the discrepancy between the weights of the twins.

cites this case as being consistent with Colles law and to support this view suggests that the husband (not syphilitic) was the father of one twin and by a calling on the principle

reasonable explanation It is not so very

January any diagnosis. About June 15 she had a slight bleeding spell

At nearly every visit throughout her pregnancy she complained of her throat, coughing, headaches pains in various places, feeling below par dizziness, blurred vision and heartburn January 20 her whole vagina became markedly inflamed, with itching, but very little discharge January 28 she had an-

other bleeding spell. There was no rise of blood pressure throughout. In this case I made the note to look for a battledore placenta with another infarct

bleeding at the eighth month, in January. No other infarcts were visible to the eye. Normal delivery of 8-pound, 6-ounce baby.

It will be noted that in several of the previous cases, vaginal discharge with or without bleeding is associated with infarct formation. In this case the vagina became inflamed before the bleeding occurred in others the bleeding came first. The onset of vaginal discharges (the discharge coming from the cervix associated with marked reddening of the vagina and itching) has been a more or less frequent occurrence in my practice. My present view of this symptom is that it results from the drainage of the septic serous discharge which originates in the early infarct formation. If the discharge is sufficient to dissect its way down between the chorion and the uterine mucosa to the cervix, it inflames the cervix and vagina. Bleeding may or may not accompany this symptom dependent on its amount. One of the ward cases gave a history of slight bleeding about a week before delivery. When the placenta was born an area of bleached out blood clot the size of one's hand was adherent to the membranes and extended from the edge of the placenta to the edge of the point of rupture of the membranes. In this case the external bleeding had been less than that which had been retained between the chorion and the uterine wall. The serous discharge which so frequently follows the frank bleeding in a case of threatened miscarriage is probably the expression of blood serum from the retained blood clot or from the inflamed area of beginning infarct.

Most of the above cases were collected during a period of 6 months and similar cases must be occurring in every obstetrician's practice. All that is required for their identification is careful history taking, note taking and close observation of the placenta.

These cases not only demonstrate the significant relationship between the clinical events of the pregnancy and the findings in the placenta, but they also demonstrate the diversity of manifestations which are attendant upon infarct formation when it is appreciated that the infarct is infectious in origin.

The case which shows frank infection in the throat followed by uterine bleeding and this uterine bleeding is coincident with the formation of an infarct demonstrates a very clear sequence of events. It is apparent also that an infarct may form in the placenta without any outward manifestation since the outward manifestation requires that the bleeding or serous discharge must be sufficient in quantity to dissect its way downward from the edge of the placenta between the chorion and the uterine wall to the cervix and vagina. Like wise chronic sepsis may cause infarcts without manifestations either in the mouth or vagina.

bacteria in these infarcts, and why have they not been found before?

A careful consideration of this feature of the problem will not only explain the last question but also will show that it is almost impossible of attainment.

In the first place it must be remembered that the acute infarct, that is, the one with active bacteria contained therein, is a red inflammatory affair. It can not be identified by the naked eye on the surface of the placenta. The white infarct which we see ordinarily is the end-result of this process which originated weeks and months previously. The white infarct does not represent present infection but past infection. It is similar to a healed scar. In order to identify the area of acute infection the placenta must be sectioned, stained and studied with the microscope. It seems to me that this explanation not only makes it clear why the etiological factor has not been discovered but also makes clear that this form of research is almost sure to be fruitless.

Placentas *in situ* are the only ones which offer a reasonably fertile field of examination.

It must be borne in mind that the bacteria arrive via the maternal blood vessels. It is probable that the evidence of infectious inflammation may be located principally in the uterine wall even after the birth of the placenta. This feature may account for many of the foul lochia after careful asepsis at the time of delivery. Reference to the pathological report in the case of Cornell and Earle referred to in my other paper (2) and the second case described by Thompson in his article (4) on Placenta Prævia demonstrate by their findings that the infarct is the result of infection.

The history of the following case strongly suggests that an acute infarct may be torn open at the time of birth resulting in infection of both mother and baby.

account for her fever other than uterine sepsis.
The baby ———

well. The onset of the fever in both mother and baby had come within the first 24 hours.

To explain such a case it is necessary that the source of infection which made its appearance in both mother and baby simultaneously must have been present before delivery. As there was no evidence of it previous to delivery it is probable that the labor was the means of bringing it to light.

If we picture an acute infarct in the placenta it is easy to see why both mother and baby became infected simultaneously. The baby received virulent bacteria into its blood stream during the contractions of the uterus in labor from the acutely inflamed area in the maternal vessels of the placental site. The detachment of the placenta following the

birth resulted in the increased activity of the bacteria still in the uterine wall. The mother required in all had been abscessed several times (quinsy) previous to her pregnancy. The baby had no such immunity and died.

The clinical events described in the above 15 cases demonstrate a clinical entity. The evidence is convincing when it is found that the shape of the placenta and the position of infarcts thereon can be prophesied with reasonable accuracy.

Case 11 as well as other cases in my practice demonstrate the corollary to be true. This case had no untoward symptoms during her pregnancy until her attack of influenza. The cord was attached to the center of the placenta which shows that it had enlarged concentrically until the acute infection came.

Not only do these cases demonstrate the etiological factor in infarct formation but also they show that infarct formation is due to many different kinds of bacteria. The clinical sequence of events shows where treatment can best be directed in the prevention of the consequences which follow upon infection of the placental site.

In a subsequent paper I shall show evidence of the consequences of infection of the placenta, the relation of infarcts to toxæmia of pregnancy and the effects of chronic sepsis in the pregnant woman.

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ILEOSTOMY FOLLOWING RESECTION OF THE COLON

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THAT deliberate ileostomy following resection of the large bowel is a rational and advantageous procedure seems to be logical, and in a series of such operations performed in the Mayo Clinic its practicability has been so marked as to warrant its adoption as a routine measure.

Resection of the right half of the colon is a technical procedure safer, easier and better from the standpoint of prognosis than the resection of the left half because (1) the mobility of the right half of the colon generally is such as to make it approachable without too much difficulty and even in cases in which the mesentery is short the division of its outer leaf from the parietal peritoneum makes it possible to rotate the viscus toward the middle line and to reach its lymphatics and blood supply with comparative ease and (2) the blood supply is more constant than in the left half and consequently a resection up to a point of election can be made more readily without the fear of necrosis at the point of anastomosis. The blood supply of the ileum is of no moment and the continuity of the intestinal tract may be restored either by end-to-end or lateral anastomosis as the preference of the operator dictates. The former has proved most acceptable to us. It is made with three layers of sutures, two of chromic catgut and one of silk. Should the lumen of the two ends of bowel be dispropor-

the technical obstacles encountered in attacking the splenic flexure and lower sigmoid its removal is a formidable undertaking. Whether end-to-end lateral anastomosis, or the Balfour method of using a rubber tube is resorted to in order to restore the continuity of its lumen, one hesitates to conclude without abdominal drainage because of the ever present danger of leakage at the suture line. Fortunately the few resulting fistulae are usually of short duration and the local peritonitis which sometimes follows, rarely spreads.

Deliberate ileostomy in all resections of the colon reduces, to the minimum, distention from flatulence with resulting tension on the suture line and makes convalescence as uneventful as possible.

The advantages of an ileostomy as a safety valve and a ready drain to the proximal intestine are obvious. The idea of a safety valve against back-pressure from gas first was suggested by bringing out the appendix through a stab wound in the flank and later cutting it off to allow the escape of flatus; this is still practiced by many surgeons. The poisonous products of chronic, progressive, intestinal stasis, due to neoplastic obstruction are such that the combined

of the operation is rendered infinitely safer. We have not as yet put enterostomy to such use but it seems to offer much the same advantage as following resection.

TECHNIQUE

We have found an adaptation of the Witzel method of gastrostomy simple and advantageous. It has seemed preferable to attach the loop of intestine with its tube into the lower angle of the incision which is usually

by holding it between the thumb and index finger using these as a sort of removable

supply of the left half of the colon.

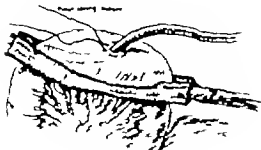


Fig. 1. Purse-string suture placed around the tube for its introduction into the bowel.



Fig. 2. Purse-string suture tied at the opening in the intestine. Catheter inserted by way of attempted anastomosis.

paramedial rather than to make a new stab wound in one of the iliac fossae. Prolonged wound drainage from contamination is rare and internal fistulae have not been observed. A loop about 30 to 40 centimeters proximal to the line of anastomosis is caught up and held lightly in rubber covered clamps after being stripped of its contents as dry as possible. In its center opposite the mesenteric border a purse-string suture of silk is placed and through this an opening is made into the lumen of the bowel either with knife or cautery as suggested by Long. A rubber catheter with the end cut off and several fenestrations in the side is inserted into the lumen, the purse string is tied and cut, and a new suture used around the base of the tube, making a second invagination. The tube is now laid along the long axis of the bowel and depressed into its wall, while the serous and muscular coats are drawn over it with the second silk suture, which has already been used around its base. The depression of the tube into the bowel wall for 2.5 to 5 centimeters insures against leakage and future fistula. It is well to fasten the tube into the bowel more securely by passing the last suture through the lumen of both. C. H. Mayo has sometimes employed the Coffey method of incising the bowel down to its mucosa and closing the outer coats over the tube (Fig. 1 and 2).

After completion of the enterostomy the catheter is attached in the lower angle of the wound to the parietal peritoneum and the catheter is closed off with a clip to be opened

when occasion demands. We have found it a decided advantage to use a very small catheter since the fluid content of the bowel can be drained slowly if necessary. Evacuation of gas is the primary object. We have used No. 8 and No. 12 catheters and have decided in favor of the smaller. The silk sutures through the lumen generally cut through readily and the catheter drops out of its own accord usually about the twelfth day. In one case a larger tube stayed in 17 days. The tube may be opened at any time and drained into a bottle fastened in the dressing. The ease with which distention is thus prevented is in striking contrast to the persistent and less successful use of enemata (Fig. 3).

The surgical procedure should be supplemented by rigid adherence to the principle of giving nothing by mouth for several days after the operation. Fluids by hypodermoclysis amply supply the tissues with nourishment and are easily tolerated if given in moderate amounts. Morphine in adequate doses to combat pain and inhibit peristalsis is essential. The too ready acquiescence in hospitals to the patient's demands for food within the first week of convalescence is to be distinctly deprecated.

DISCUSSION.

Nélaton in 1858 successfully performed a
before
e such
Sum-
mers in 1920 in reviewing the history of en-



Fig. 3. Operation brought down to cover the suture line. The needle passes through intestinal wall and peritoneum.

ciple have been devised and put into use as the indications were presented. Perhaps the most varied methods of technique have been evolved in attempting some form of jejunostomy for feeding in cases of malignant obstruction of the esophagus or of growths in the stomach. The selection of the jejunum

the old and up to that time accepted theory that the first distended loop of intestine that presented itself should be opened and used.

While this procedure necessitates more manipulation and exposure than the simpler one of taking the first coil available, it drains the contents of Bouney's segment of toxicity more surely and successfully. The experimental work of a number of investigators along the line of intestinal obstruction seems to bear out the contention that most of the fluid content of the intestinal tract is high in the small intestine.

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TOTAL TRANSPOSITION OF VISCERA

BY HENRY H. SHERK, M.D., F.A.C.S., PASADENA, CALIFORNIA

AS an anatomical curiosity *situs viscerum transpositus* has always been of considerable interest to the anatomist and embryologist and instances of this abnormality have been observed and recorded since the time of Aristotle. To the clinician its recognition has more practical significance and is of extreme importance from the standpoint of differential diagnosis.

Until (1) recent years most of the recorded cases had been found on the dissecting or post mortem table. Now however the reverse is true and the majority are recognized during life by the clinician. The X-ray and the present day thorough and systematic routine examination are responsible for this.

Aristotle's writings (2) show that he had observed two instances of transposed organs in animals.

Petrus Servius (3) in 1615 recorded the first recognized human case as occurring in Rome but Carl Beck (4) states that the earliest authentic case was reported in the time of Moliere in the person of Marie de Medici Queen of France.

Kuchenmeister (5) was the first to recognize the condition during life based on examination by percussion and auscultation.

According to Sörge (1) the first X-ray record of this condition was made by Vebe-meyer in 1897.

In 1865 Grueber (6) collected 79 cases from the literature, only 5 of which had been recognized during life.

Kuchenmeister (5) in 1888 collected 149 cases. By 1895 Pic (7) was able to collect 190 reported cases and in 1902 Arnel added including his own 44 more 38 of which were

three unpublished cases (J. M. King, S. J. Mattison and H. A. Rovster).

These figures cannot be accepted as accurate or complete for this anomaly has been reported under so many different titles and individual cases so often duplicated in the published articles that it is very difficult to sift them out.

A communication from the Mayo Clinic states a hurried search of their records shows 10 cases indexed since 1910. For the same period their registration was approximately 347,000.

Only two writers (6 and 7) have mentioned

inversus or *transversus*) is meant not only that the organ is situated on the side of the body opposite to its normal location but that it is also reversed as to its actual structural relationship presenting in comparison to the normal, as if seen in a mirror. For example in transposition of the stomach the pylorus lies to the left and the cardia to the right or in transposition of the heart the relative position of the auricles, ventricles and vessels is reversed.

When the viscus is not reversed in its abnormal location it is simply a displaced organ or in a condition of *situs perversus*.

Of course an acquired dextra cardia is never a true transposition of the organ.

Transposition of the viscera may be total or partial. The former is by far the more common. The latter is very infrequent. This is especially so of true congenital dextra cardia as an isolated condition of which Schrotter (8) says none not combined with transposition of other viscera have actually been confirmed by autopsy. Contrary to Schrotter's statement Krieser (8) in 1880 collected 14 reported instances of isolated congenital dextra cardia. Of these 14 how-

topical resume.

From the literature at my command I have been able to find 24 cases reported since 1912 and have received verbal reports of

ever only 5 were proven by post mortem examination

Total transposition of viscera is apparently twice as common in men as it is in women (5) and when occurring in women it has no effect on their childbearing ability (9)

Statistics on which to base the incidence of heredity could not be found in the literature no cases having been recorded in which the condition occurred in parent and child Brimblecombe (10) reports one instance of two cases in the same family brother and sister

Many theories, as to the determining factor in the causation of this condition, have been advanced—but none has been substantiated (5 11 and 12)

The most plausible explanation (3) is the one that ascribes it to the changed position of the primary cardiac tube in early embryonal life a reversal of its direction from a normal 5 to the reversed 2 This change (8) of position is probably caused by the reversal of the direction of the blood current which

its blood supply

Von Baer (5) ascribes it to the changed relations of the embryo and the umbilical vesicle. Normally it lies on the left side of the vesicle, but if it lies on the right side transposition of the viscera occurs

Rindfleisch (5) believes that a reversal of the spiral turning of the blood column is the causative factor

Virchow (5) emphasizes the influence of the umbilical cord In *situs transpositus* it is wound spirally to the right like a right handed screw the reverse of the normal which is to the left This fact, if true is of real practical importance

Adams (12) quotes the *monochoiral twin* theory but puts little faith in it

In his article (5) Arnel takes up most fully the many theories that have been put forward by various writers

A reversal of all of the ordinary physical signs occurs in total transposition of the viscera The position of the apex beat the cardiac dullness, and valvular sounds, the

liver dullness, and the stomach tympany are all transposed and reversed Also in the male, the right testicle in the majority of instances, hangs lower in the scrotum than does the left

The reversed spiral twist in the umbilical cord may be present when the newborn infant

Theoretically the speech center in the brain should be transposed (12 and 13) This is of special interest to the neurologist and the neuro surgeon In so far as it influences differential diagnosis Correspondingly the subject should be left-handed but this is an *inconstant finding*

Electrocardiographic tracings sometimes show inverted waves (14 and 3)—but this also is not constant

The transposed organs develop normally (3) and their abnormal position apparently has no effect upon their functioning or upon the general well being of the subject of total transposition They are normally able to undergo exertion without distress or undue fatigue and are not more than ordinarily susceptible to disease (15)

On the other hand the subject of partial transposition is generally deficient in stamina and suffers distress upon slight exertion (15)

Recognition of the abnormality is generally easy except when associated with some pathological condition which might account for an acquired malposition of an organ

It is surprising how many of the reported cases of transposition of the viscera remained unrecognized until the abnormality was disclosed at operation or autopsy

Virchow (4) found transposed viscera *post mortem* , in a case where, in spite of the observation of reversed ordinary physical signs the clinician had stated that on auscultation the heart sounds were "heard with difficulty on account of the presence of bronchitis" and that the spleen was very much enlarged

One reported case had been examined five times for life insurance without the condition of transposed viscera being recognized (5)



Fig. Roentgenogram of chest in author's case.



Fig. Roentgenogram of abdomen in author's case.

Lane (6) reports a case of a soldier who had previously been examined several times and his abnormal condition passed unrecognized.

From a diagnostic standpoint the knowledge of the existence of a condition of *situs viscerum transpositus* is of extreme importance in the presence of most of the inflammatory diseases and injuries of the chest and abdomen. In some its recognition is essential to a correct differentiation.

It is unnecessary to enumerate the many pathological conditions in which this has a bearing.

It is also unnecessary to emphasize the great importance of making a complete and thorough physical examination, with the possibility of this anomaly in mind as a routine procedure in every case.

In newborn infant an umbilical cord with reversed twist should always suggest to the obstetrician the possibility of an associated visceral transposition. How seldom this is ob-

Every individual in whom transposed viscera are observed should be fully advised as to the abnormality and be instructed in case of illness or accident so to inform the attending physician. This precaution may prevent an unnecessary operation or at least obviate inconvenient or duplicated incisions.

My own case seen recently is as follows:

Miss M. A. Norwegian servant girl age 27 height 5 feet 6 inches weight 166 pounds net consulted me October 14, 1931 on account of a gradually increasing amenorrhoea. Family history negative. Mother died of kidney disease. The patient was a large hearty girl with bright complexion, who said she had had no illness since childhood except an attack of influenza about 5 years ago. Her menses began at 13 irregular at first, 25-day type and lasting 3 to 4 days. She had little pain, which, when present all days occurred at the start. The flow was never free. She is not of nervous type. Does not overwork. Has no past sexual history at least none could be hinted. Saw her menses for past year had become less and less. Her last period had ended days previous. It had lasted less than 2 days, and the flow had not been more than a show. I examined her chest as matter of routine and in view of a possible pregnancy to allow inspection of the breasts without

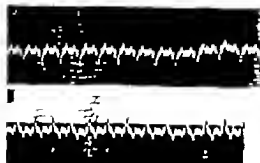


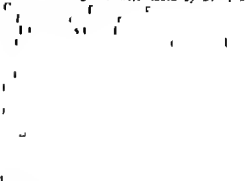
Fig. 3. Graph showing normal curve at top, 3. reference curve in other case at bottom.

esophagus entered a normal, slightly curved, normal

second lumbar vertebra to a hepatic flexure normally related, but on the left side. The appendix did not fill. The ileocecal valve is competent. The stomach is seen horizontally placed in the upper most part of the abdomen, normal in size but transposed.

The entire contents of the chest and abdomen appear on the films as absolutely normal in size, shape, and relationship except for their transposition.

Electrocardiograms were taken by Dr. A. S.



the 14th.

Besides the above characteristics, the cardiograms are entirely normal, and very typically show the condition of dextro-cardia present.

It is interesting to note that this patient had never been conscious as some of these subjects are of the heart sensations on the right side and although examined physically several times when she had the influenza and once or twice at previous dates, the transposed position of her organs had never been recognized. She is right handed and there is no asymmetry of figure spine face eyes, nose throat or neck.

SUMMARY

1. Total transposition of viscera is not so

individual

4. Its recognition is extremely important in certain surgical emergencies.

last paragraph.

The chest findings were corroborated by my

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THE GERMICIDAL CHARACTER OF THE EMANATIONS FROM COLLOIDS OF CERTAIN SILVER SALTS

A PRELIMINARY REPORT

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FOR some time our interest has been directed to improvements in the preparation of germicides suitable for application to mucous membranes. This interest was further stimulated by the studies of Colonel Hugh H. Young after his interesting report on mercurochrome 220. Knowing that metallic silver had the quality of preventing the growth of micro-organisms immediately around it we hoped to secure a preparation which would exhibit this quality and at the same time be non-irritating and if possible non-staining. It would not be of value to record our failures as our early effort were without encouraging results.

When we began however with the colloidal preparations of silver the results became more satisfactory notably with the colloidal silver chloride. This proved to have a high germicidal value was non-irritating and did not stain unless it was exposed to light before being washed. A series of laboratory tests encouraged us with the prospect of obtaining a better preparation than those

now employed. We now make a preliminary report of our clinical observations and laboratory tests with photographs of some of them. A detailed account of both clinical and laboratory experiments will be made later as our findings seem to open a new field for study and work.

THE PREPARATION

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chk
var salts on cultures of staphylococcus aureus show a fact which we think has not hitherto been observed namely that colloidal silver preparations free off emanations which prevent the growth of micro organisms immediately around the sealed glass tubes containing them.

This fact became of still greater interest when we found that the colloidal silver chloride was non-irritating to mucous membranes even when employed in a strength sufficiently strong to be of greater germicidal value than carbolic acid.

The comparative harmlessness of this preparation was clearly shown by the fact

Fig. 1

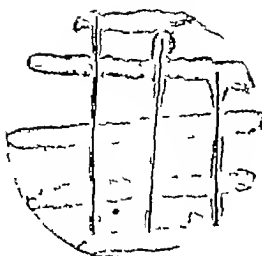


Fig. 2



Fig. 3

Fig. 1 Silver wire showing emissions destroying deeply located tissues. It was this phenomenon which led us to make the study of colloidal silver salts.

Fig. 2 and 3 show definite emissions. Colloidal silver chloride small in amount as shown at dark part. Small amount secured inside tube. This shows emissions extending more widely from the part where there is space the tube.

Fig. 4



that spermatozoa could live and remain actively motile in it for 10 minutes or longer. The highly organized and delicate character of these cells would naturally show quickly

the result of irritating or poisonous chemical. When we found therefore that the laboratory reports of Dr. John Funke, professor of bacteriology at Emory University showed

Fig 3

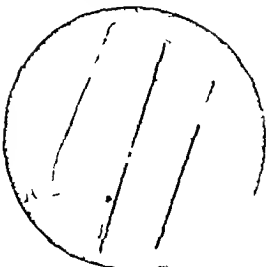


Fig 6

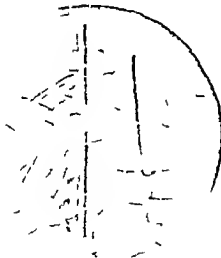
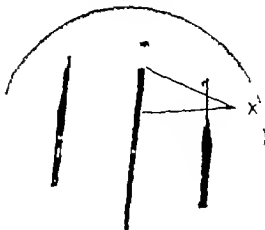


Fig 7

Fig 3. All tubes colloidal silver chloride also the emulsions, etc. with streaks upon at end of middle tube.

Fig 6. Colloidal silver chloride in blue tube thick glass petri. Same preparation in thin clear glass petri. Same except at point near left and here continuous edge in approx. 1 cm. colloidal silver chloride in thick clear glass petri.

Fig 8

Fig 7. Colloidal silver chloride, positive emulsion. Fig 8. Strong colloidal silver chloride in small tube emulsions positive culture one week old and secondly infected by photomicrograph. Strong colloidal silver chloride in tube dipped with four lots of petri emulsion and covered with colloidal emulsions slightly positive. Strong colloidal silver chloride in medium size tube emulsions positive.

that 1 per cent. colloidal silver chloride when diluted 100 times killed the typhoid bacillus in 2 1/2 minutes and yet spermatozoa could live in the 1 per cent solution for 20 minutes.

or more we felt that this preparation was remarkable. It clearly showed a selective action against micro-organisms and was not irritating to the body cells to which it was

applied. A 5 per cent solution of liver chloride diluted 4,000 times, mixed with an equal quantity of secretion from a foul mouth in which actively motile spirochaetae were observed stopped the motility of the spirochaetae in 4 minutes. Many subsequent tests confirmed the early encouragement and now we have employed it in 300 patients with genito urinary affections.

We were pleased to note in the July 1921 number of the *American Journal of Urology* an article by Dr Ralph B. Cobb entitled "A New Advance In Silver Therapy" who reports very satisfactory results with colloidal silver.

T

gic organs are in accord with our own work.

We sealed our colloidal silver chloride in the anterior urethra, using collodion over the meatus to prevent its escape, and it was without pain to the patient when so employed for 3 to 5 hours nor was urination painful after the collodion was removed. The mild remedy we have been able to use in this manner heretofore, was argyrol, and yet it was not without discomfort and did not have anything like the germicidal value of the colloidal silver chloride which Dr Funke's report

EMANATIONS

Colloidal silver chloride has the faculty of giving off emanations which apparently penetrate further into the tissues than any of the remedies we have been able heretofore to obtain. This fact is shown by both laboratory and clinical tests, for the clinical tests lead us to believe that we are able to destroy gonococci in the gland of Latre in the roof of the urethra when the solution itself could not enter them. The mucous membrane seems to be no more difficult for the emanations to penetrate than is glass, which the photographs of the agar plates show offers little obstruction.

We are unable to explain why some of the tests with colloidal silver chloride show negative result as regard emanations while

others, quite similar are positive. Our first thought was that there was a leak in the tubes and that this accounted for the emanation phenomena, but a careful study of the tubes and plates did not account for this. The thickness of the glass tubes accounted for some of the failures. Dilutions of the colloidal silver chloride accounted for others, while there still remains a series of negative results unaccounted for except perhaps for the fact that traces of lead were in some of the capillary tubes or some of the sodium in the glass interfered with the emanations. We are duplicating our results with conisol or Jena glass tubing to obviate the discrepancy. Tests were made with celloidin, collodion and peritoneum from the intestines of pigs; all of these allowed emanations to pass through them (see photographs).

The reason that the colloidal preparation of silver gives off so much more of the emanation than the metallic silver is probably because of the enormous increase in the surface provided by the infinitely small subdivisions of the silver and the Brownian activity. It is not apparent why a 10 per cent solution of nitrate of silver should give off none or so little as not to influence the growth of bacteria on the agar plate nor is it obvious why the colloidal chloride should give off more than the iodide. Equally puzzling was the fact that in the heated end of the tube, where some of the colloid is burned there is frequently given off definitely larger amounts than from the part where only solution was in the tube until we learned that Rutherford, in 1906 found that coccol

states that a slow current of air at ordinary temperature charged with emanations of radium thorium or actinium is deprived of some or all of its emanations in passing

less than a gram of charcoal is connected to a vessel containing emanations from several milligrams of radium bromide the charcoal will absorb the emanations in time. Further

more if powdered willumite be mixed with

many of the burned ends of the glass tubes give off more emanations than the colloidal solution. The charred material in the burned ends evidently absorbs the silver emanations and then allows its escape with greater readiness than does the solution.

Empty spaces or bubbles also often destroy the germs for a greater distance than does the colloid. This phenomena is probably due to the wider play of the gaseous atoms. The Brownian movement so clearly seen with the ultramicroscope is only a visible demonstration of what is going on with infinitely smaller gaseous particles which are less obstructed by air than are the particles by the surrounding stabilizing solution.

Ehrenhaft found that there is a much livelier motion in gases than in liquids, and his experiments led him to conclude that there is a motion in gases completely analogous to the Brownian movement.

The study of colloids while most fascinating and intimately connected with much that goes on in and around us is far too complicated and extensive to discuss in this connection. Many useful books have been written on colloids, their preparation and characteristics, and yet there remains much to learn about them. It is sufficient here to say that colloidal solutions of metallic substances or insoluble salts consist of minutely subdivided masses held in suspension by their Brownian motion.

CLINICAL USES

No irritating effect was noted when this preparation was given as an injection or instillation into the urethra injected into the bladder injected into the pelvis of the kidney for pyelitis injected into fistulous tracts abscess cavities or broken down buboes applied to the conjunctiva mucous membrane of the nose throat or inner ear antrum of Highmore used as a wet dressing etc.

Intravenous injections. Rabbits inoculated with fatal dose of staphylococcus aureus did

not die if 1 cubic centimeter of a 1 per cent colloidal silver chloride solution was given intravenously 15 to 20 hours later. The control rabbits which received similar injections and not treated with colloidal silver chloride promptly died with multiple abscesses of the kidneys heart and other organs.

The rabbits were sometimes not disturbed by a cubic centimeters of the same solution given intravenously. Freshly made solutions were found to have greater germicidal value than the preparations several days or a week old.

Intrapertoneal injections. Five cubic centimeters diluted with an equal quantity of physiologic salt solution was given intraperitoneally and the rabbits lived though they appeared sick on the day following the injection.

A series of experiments are now being made with tubercular and other infections than the staphylococcus aureus, and in due time we will report the results. The work is being done by Dr. Klugh in the laboratory of Drs. Bunce and Landham (who also made the agar plate tests) and by Dr. John Funke.

Silver chloride has the formula Ag_2Cl_2 and is found free in its natural state as a substance known as horn silver. It can be prepared by mixing a solution of sodium chloride with a solution of silver nitrate and appears as a curdy white precipitate which darkens when exposed to light. It is decomposed by caustic alkalis to an oxide. It is soluble in ammonia water thiosulphates and cyanides and is insoluble in water and dilute acids. It melts at 500° F. and forms a translucent mass (horn silver). Finely subdivided in its colloidal form, its minute masses are negatively charged moving to the positive pole (anion). In "

... are those so small that they cannot be seen to the larger ones which are readily visible with a dark field microscope as actively motile masses about the size of micro-organisms such as the staphylococcus or larger. Colloidal silver chloride is

applied. A 5 per cent solution of silver chloride diluted 4,000 times, mixed with an equal quantity of secretion from a foul mouth in which actively motile spirochaetae were observed, stopped the motility of the spirochaeta in 4 minutes. Many subsequent tests confirmed the early encouragement and now we have employed it in 300 patients with genito-urinary affections.

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shows is several times stronger than carbolic acid. Neosalvol was non-irritating but lacked either germicidal qualities or penetration.

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states that a slow current of air at ordinary temperature charged with emanations of radium, thorium or actinium is deprived of some or all of its emanations in passing through a tube filled with coconut charcoal. He further states in another experiment that Rutherford found that if a tube containing less than a gram of charcoal is connected to a vessel containing emanations from several milligrams of radium bromide the charcoal will absorb the emanations in time. Further

THE TEST OF LABOR¹

RESULTS IN 100 CONSECUTIVE DELIVERIES AND FACTORS AFFECTING THEIR MANAGEMENT

BY W. GEORGE LEE, M.D., CHICAGO

Assistant Professor of Obstetrics and Gynecology, Rush Medical College; Attending Obstetrician, Cook County Hospital

MANY new obstetrical procedures are being advocated today, some to be employed almost as routine measures, each one as a panacea for certain obstetrical difficulties. Prophylactic forceps, routine podalic version and extraction or mechanical induction of labor at a definite date determined by estimation of foetal age, are some such already prominent and prophylactic caesarean section may not be long delayed. Such titles in themselves at times, tend to dissolve criticism. Who of us but is interested in prophylaxis? All of these measures have such earnest and able sponsors that we are thereby committed to impartial weighing of their merits, even though some must finally be ruled out perforce as being mutually incompatible. We here are concerned only, however, in trying to determine the value of methods long used to enable us to compare the value of such older practice with the newer methods.

Does not the story of Aladdin and his wonderful lamp offer an allegory for us? There the cry, new lamps for old, was effective and though doubtless many benefited who gave their old possessions, still the fact remains that Aladdin's lamp was exchanged for one incomparably inferior though new. The new always attracts sometimes from mere desire of change, sometimes from the hope that it represents better things. But now as in Aladdin's day, real worth may perhaps be recognized only with effort and analysis.

What are the best methods to use to improve obstetrical results? To answer this question we may paraphrase the familiar old saying, the proof of the pudding is the eating, as follows, the proof of the method is the result. Therefore we must compare those results that are variously obtained.

Labor is the active efforts of the pregnant uterus to rid itself of the viable products of conception by childbirth. The Art (or

practical application of our knowledge) of obstetrics largely concerns labor. One definite method of procedure, that we call the test of labor, utilizes the natural forces and mechanism in labor to their full measure.

This paper is an analysis of results from this method in 100 consecutive cases. It is our belief that the test of labor is obtained only by allowing labor to proceed until child birth either results spontaneously or from operative assistance that reinforces the natural powers, so that birth is through the natural passages. Certain women should not be submitted to this test of labor. Definite pelvic obstructions, whether from marked contraction of the bony structure, massive scar tissue or from the encroachment of tumors upon otherwise normal passages, usually present absolute indications for primary abdominal section. Also when factors endangering life suddenly arise before or very early in labor that for their successful treatment necessitate prompt positive emptying of the uterus, the primary indication is for operative interference by a method appropriate to the emergency conditions, whether by abdominal section, vaginal caesarean or *accouchement forcé*. But such cases not suitable to the test of labor are relatively very few.

The test of labor should eliminate subsequent consideration of abdominal section as a method of delivery for the given pregnancy, for we believe that a few hours only of first stage labor is futile in determining the answer as to whether successful delivery through the natural passages is possible. Miscalled tests of labor are tried at times in cases of relative disproportion although such procrastination may increase the risks of abdominal section when done while it does not eliminate the possibility of successful pelvic delivery, because not carried far enough. A true test of labor even in border-line cases will certainly be followed by the delivery of living and

miscible with feces, urine, blood, gastric juices, and pus, and retains its colloidal characteristics for a few days to a week or longer according to conditions.

THEORY OF GERMICIDAL ACTION

The active bacteriostatic character of colloidal silver chloride leads us to wonder whether its activity is due to a chemical process or to the germicidal emanations. It seems difficult to conceive of its radiated atoms having sufficient size to combine in a chemical way with the micro-organisms in sufficient quantity to kill germs. Perhaps

is most needed. It would take us beyond the scope of our preliminary report to elaborate on this interesting phase of our experiments, concerning which we have some pertinent facts to discuss in detail later.

The surprising part of the work is that we have been able to carry on a series of successful experiments, with a chemical so simple and one found in the pharmacopoeia, the only thing necessary being to make it into a colloidal state.

An adequate supply of colloidal silver chloride is being sent to some of my medical friends to determine if their clinical results duplicate our own.

SUMMARY

Colloidal disinfectants are absorbed by the micro-organisms and thereby become concentrated on the surface of the organism and also penetrate the membrane which surrounds them.

Hewlberg, under a high power microscope, has observed colloidal solutions enter the gelatinous membrane covering the bacteria after which the membrane swells and bursts. This observation, and also the fact that colloids possess high antigen power as is evidenced by the fact that 1 gram of colloidal iron will neutralize 50 diphtheria toxic units or 10 tetanus toxic units may in a measure explain the germicidal action of the colloids.

COLLOIDAL BODIES IN THE BLOOD PROBABLY TAKEN UP BY THE LEUCOCYTES AND ENDOTHELIAL CELLS IN INFLAMED AREAS AFTER INTRAVENOUS INJECTIONS

The fact is well recognized in physiology that the leucocytes (phagocytes) devouring cells take up small foreign substances cir-

1. Colloidal silver salts, notably the chloride, give off definite germicidal emanations. These emanations prevent the growth of micro-organisms on Petrie agar plates in the immediate area surrounding the sealed glass tubes containing the colloidal silver chloride.

2. A 1 per cent preparation has a germicidal value about equal to pure carbolic acid yet when sealed in the anterior urethra for 5 hours is without pain, even with much stronger preparations. No irritation is produced when applied to mucous membranes such as bladder, nose, throat sinuses, etc. Good results followed its application to abscess cavities, fistulous tracts, and also when used as a wet dressing for infected wounds, mastoid incisions, etc.

3. Spermatozoa will live in a 1 per cent preparation 30 minutes or longer. Being highly organized and delicate cells, this shows its relative harmlessness as a germicide.

4. Diluted 4,000 times, a 5 per cent preparation killed the spirochete from a foul mouth in four minutes.

5. Given intravenously to rabbits artificially infected with the staphylococcus aureus, 1 cubic centimeter of a 1 per cent preparation cured the rabbits, sterilizing their blood within 24 hours while controls untreated died within 48 to 72 hours with multiple abscesses of the liver, kidney, heart, and other organs.

mission, namely to go to the points of inflammation, and thus they tend to concentrate the intravenous germicide where it

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as to what natural forces of labor are tried at times in cases of relative disproportion although such procrastination may increase the risks of abdominal section when done while it does not eliminate the possibility of successful pelvic delivery because not carried far enough. A true test of labor even in border line cases, will certainly be followed by the delivery of living and

uninjured babies in many instances often operative but spontaneous in not a few. Even in the percentage where the fetus of a particular labor does not survive benefit to subsequent pregnancies may and generally does ensue, because fuller knowledge will indicate definitely that certain of these mothers are entitled to primary abdominal section and that others will have successful natural labor subsequently even though needing operative assistance in the present one. A completed test of labor therefore, practically eliminates thereafter the borderline type of case.

In the series of 100 consecutive patients who had the test of labor were 54 primipara and 46 multipara, 99 longitudinal presentations, 97 of which were vertex and 2 breech presenting parts, and 1 twin pregnancy the first vertex, the second breech. Of 93 vertex cases, 69 were anterior positions, 2 transverse, and 27 were posterior. Fifty-one babies, including the uniovular twins, were male, 50 were female. Of these 3 were born dead and 1 died in 18 hours following operative delivery. 1 spontaneous delivery died in 3 days after birth from inhalation pneumonia.

The largest male baby of operative delivery weighed 9 $\frac{1}{2}$ pounds, of spontaneous delivery 9 $\frac{1}{4}$ pounds.

The largest female baby of operative delivery weighed 8 $\frac{3}{4}$ pounds, of spontaneous delivery 8 $\frac{1}{2}$ pounds.

in combination —

| | Primipara | Multipara | Total |
|------------------------------|-----------|-----------|-------|
| High interference | 26 | 47 | 73 |
| Mid interference | 44 | 44 | 88 |
| Low interference | 15 | 47 | 62 |
| Spontaneous | 26 | 47 | 73 |
| Total | 100 | 100 | 100 |
| Abnormal positions | 40 | 82 | 122 |
| a) About neck | 40 | 70 | 110 |
| b) Low spine | 0 | 12 | 12 |
| Dry labor | 15 | 47 | 62 |
| Oligohydramnios | 15 | 47 | 62 |
| Excessive amniotic fluid | 40 | 82 | 122 |
| Excessive maternal sphincter | 40 | 82 | 122 |
| Excessive rupture of uterus | 40 | 82 | 122 |
| Constriction ring | 40 | 82 | 122 |
| Excessive maternal | 40 | 82 | 122 |

Indications for operation were usually not urgent. 16 had inertia uteri, 1 was a first of twins, 4 were small women, 1 of whom had acute diphtheria, 7 had exhaustion of the fetus, 1 from cord about the neck, 3 from dry labor or oligohydramnios, 3 from combinations of these, and 1 from cause not ascertained. Spontaneous birth gave 5 babies needing resuscitation from 2 breech, 1 dry labor, 1 oligohydramnios, 1 low placental implantation cases.

There were 8 slight degrees of pelvic contraction, all in primiparae, 3 flat in mid-forceps cases, 4 flat in low forceps cases, and 1 flat and 1 just minor in spontaneous birth. Of the 39 cases where the funis was involved, 1 had cord thrice about the neck, 4 twice, 1 had cord about neck and arm, 1 had a recent

include 1 (mid-forceps) in a primipara, and 1 with breech presentation in a multipara. Five very rapid labors occurred, all in multiparae, 2 of these being apparently due to the only cases of polyhydramnios in the 100 cases. No serious cases of intrapartum hemorrhage occurred. Eleven were third-stage in onset and 5 second-stage of the latter 4 were from low placental implantation in multiparae with spontaneous birth, 1 low placental implantation was found following

with the number of second-degree tears represent about 50 per cent of the total number of patients. The cardiac conditions noted did not appear grave until labor had been in progress for a considerable time. No marked sepsis occurred except one abrupt

Both breasts were involved in all their quadrants and the infection apparently was

cured by quinine treatment, malarial parasites being found. There was 1 manual re-

cases therein with babies born dead have each since had spontaneous birth of normal babies—as have also several others listed

of deviation from normal in most of them was lack of progress. That makes it plain that the recognition of lack of progress, and its underlying causes, is of very great importance, which is not always appreciated. Certainly obscure conditions, not to be diagnosed early can hardly be available for preliminary vital decisions as to methods of delivery.

We believe that while other methods than high forceps might still have been used in most of these cases when finally the obscure conditions were recognized maternal mortality would not thereby have been lessened and that indeed we might have had a marked increase in it, by any other method of delivery which did not, *pari passu* increase markedly the fetal mortality.

CONCLUSIONS

1. No patient should be submitted to the test of labor in whom are either obvious obstacles to pelvic delivery or emergency conditions necessitating speedy emptying of the uterus.

2. The test of labor therefore primarily concerns cases in which spontaneous birth is

hoped for in the present and subsequent pregnancies. Operative delivery when spontaneous birth does not ensue, should be by the pelvic route.

3. Primiparity posterior positions, dry labors, oligohydramnion, and constriction rings of the uterus increase the percentage requiring operative delivery particularly when they occur in combination. Constriction rings occur practically only where

Occurring alone the determination of the moment for such interference demands careful consideration and wise judgment.

5. Beginning maternal or fetal exhaustion or threatened rupture of the uterus, developing with lack of progress, present indications for immediate interference. Any lack of progress, however demands prompt, careful analysis to determine its probable cause with particular watchfulness for the development of such subsequent urgent indications for interference.

6. Following a given test of labor subsequent pregnancies should have an improved prognosis.

7. Forceps will always be the most used method of terminating non-spontaneous labors therefore the technique of forceps operation is of paramount importance, and should receive greatly increased attention in obstetrical teaching.

ROENTGENOGRAPHY IN OBSTETRICS¹

By D. A. HORNER, M.D. CHICAGO

From the Chicago Lying-in Hospital

SINCE the beginning of my work in this field 2 years ago, several articles pertaining to the use of the X-ray in obstetrics have appeared in American literature. Heretofore very little has been written, but it is safe to say that the near future will bring out much more depending upon the readiness of the roentgenologist and the obstetrician to accede to the harmlessness of exposing the pregnant woman.

As an advance in obstetrics, roentgenography ranks with other comparatively recent discoveries, such as twilight sleep, pituitrin, rectal examinations in labor, the head stethoscope and the low type of cesarean section.

HISTORICAL

The surgeon and internist readily recognized the value of the X-ray in their own fields. Shortly after its acceptance by them, it became malpractice not to use it in various conditions. Today one wonders how they did without it for so long.

The obstetrician feared its action on the pregnant woman and the unborn babe. Only the bolder ones experimented with it half heartedly. Superstition attributed to the apparatus all pathological conditions following its use. The timidity of the laity and the profession is even to this day quite pronounced.

The steps leading up to present-day use are few. In 1899 Müllerheim roentgenographed women with partial success. Before that, only fractional portions of the mature fetus could be demonstrated. Thereafter plates of the fetus *in utero* were looked upon as roentgenographic curiosities. In 1913 Sjogren of Sweden differentiated for the first time between intra uterine and extra-uterine pregnancy. In 1915 O'Donnell stated that the position of the fetus could be clearly determined from the fourth month. I shall consider this statement later. DeLee then in discussion fully outlined the limitations and possibilities of the X-ray. He emphasized

its uselessness in determining the possibility of mechanical difficulties in labor except in gross deformities. In 1915 Judd showed a case of twins. In 1918 MacKenzie attempted measurements of the pelvis by this means and was partially successful. In the same year came the revolutionary work of Warnekros of Berlin on the fetus *in utero*. Today in all parts of the civilized world extensive roentgenographic investigations during pregnancy are being made.

PREGNANCY

By the ordinary means of roentgenography I am convinced that it is impossible to show a fetus *in utero* before there is sufficient ossification to form a skeleton. Both Hess and Adair arranged schedules for the appearance of the ossification centers in specimens taken from jars but showing these centers in the fetus *in utero* is another matter. Their density at 90 days is not great enough to show through abdominal and uterine walls as well as liquor amnii until long after they can be demonstrated outside of the body. It is only after they are well developed and widespread that they can be attributed to fetal bones and not to calculi, enteroliths or phleboliths, etc. At 120 days or 4 months, only that part of the fetus over the inlet is

secured in
bones

others claim

positive diagnoses are possible at 4 months. Edling, as early as 1910, and Fornero as late as last May stated that at 3 months not only pregnancy but also presentation and position can be determined.

Unless these investigators have a refinement of technique beyond that of most present-day roentgenologists their researches must be considered faulty. My own efforts satisfy me that the fetus cannot definitely be diagnosed as such before quickening. After this it becomes a comparatively easy matter in women of average weight.

It was hoped that pneumoperitoneum would reveal something of value in the early months. It reveals nothing that the educated finger cannot tell us. Its place in obstetrics is associated with the recognition of accompanying tumors, adhesions, and ectopic pregnancy.

"Position" as stated by O'Donnell and Fornero must not be confused with "presentation." I have found in my study that the X-ray plate shows the size and clearness of the fetus required to demonstrate "position." The collection of Warnick is also called to your attention for a similar purpose. General practitioners sending patients to hospitals for deliveries often have no conception of the presentation and position in their cases. They depend for this information on the in-ter-views of the hospital even after having had their patients under observation for months. For such as these I would suggest at least one exposure before the onset of labor.

FOETOMETRY

After demonstrating the fetus, foetometry is the next advance. The work of Hess is of value in establishing the age of the expelled fetus. But there are occasions when the age of the fetus *in situ* as well as its actual size is required. We attempt to measure its length and head diameters. The induction of premature labor and the prevention of over-term pregnancy can now be undertaken

important in making decisions of pregnancy duration from plates.

It is not unusual for even the best obstetricians to be from 1 to 3 pounds off in their estimates of the size of the fetus.

When abdominal palpation and mensuration are not satisfactory and dates are unreliable, roentgenographic interpretation can be depended on.

Six of my series were shown to be too large to navigate the passages successfully. Caesarean sections were performed in these cases. Six mothers were thereby spared useless, difficult labors with extensive damage and six babies who otherwise might not have

survived are living today. In none of these cases was the fetus over-term. Pelvic measurements were close to normal.

At this point I may state that in not uncommon instances caesarean sections have been performed bringing forth deformed babies or monsters thereby assuming an unnecessary risk for the mother. Several obstetricians insist on routine roentgenography before caesarean section to view beforehand what the uterus contains. Others are still fearful.

Objection has been raised to the use of the X-ray just prior to caesarean section on the basis of its devitalizing power comparing its effects on the peritoneum with that of radium. Fatal peritonitis has followed the administration of radium in uterine condi-

pregnant women shortly before caesarean section has not been stopped by the faintest suspicion of peritoneal involvement. It follows that, given clean cases, peritonitis is still attributable to a slip in surgical technique and not to the X-ray. The endothelium of the knee joint is more sensitive than the peritoneum, yet the surgeon does not hesitate to employ it there.

PELVIMETRY

When DeLee (1913) stated that one could recognize gross deformities, distortions and narrowing of the "inlet," practically nothing had been done to measure the pelvis with a view to ascertaining its *size* defects. The recognition of gross deformities as related to childbirth is quite an accomplishment in itself and is much to the credit of the X-ray. We often, in our *crude* external pelvimetry take too much for granted when the measurements are normal. Difficulties encountered later when the patient is advanced in labor are often unlooked for. Every obstetrician has encountered such cases. When discovered it is too late to do an abdominal opera-

In many instances one can say that a certain head will successfully come through a given pelvis, but in a number (far greater than we admit) it is impossible to state so positively. The importance of *knowing* definitely is more evident with each labor terminating with difficult high forceps and foetal death. The conjugata vera and the bispinous measurements can be taken with the fingers or special instruments with a fair degree of accuracy. But we are not all proficient in ascertaining these cardinal internal measurements.

Many defects overlooked in external and internal examinations, e.g. marked contractions of the inlet, sacro-iliac disease effects of old fractures, exostoses, callus formation following previous pubiotomy etc. can be perceived at a glance.

The recognition of the finer faults can only be made by the X ray if at all and then only after much experience in interpreting the plates taken. The following-up of such cases clinically is essential to successful interpretation and is possible only in hospitals with large maternity departments. Comparison in many cases being required. Collaboration of roentgenologist and obstetrician is of prime importance.

There are possibilities of error in interpreting the size of the inlet because of the varying degrees of tilting of the different pelves. If all pelvic inlets had the same angle of inclination to the horizontal, it would be an easy matter to estimate their measurements.

Higher mathematics have been employed in roentgenographic pelvimetry. The methods and calculations are too complicated for general use. But recently I experimented with Chamberlain and Newell's stereoscopic method. The results obtained are excellent. Only a few simple geometric principles are involved in the solution of any or all the diameters.

Stereoscopic views at or just before term give a much clearer picture of the relation of the head to the maternal pelvis, and the probabilities of difficulty in engagement.

The measurements in cases of ankylosis of the sacro-iliac joint and the assimilation types of pelves may be perfectly normal, yet

abnormalities in the mechanism of labor occur. The X ray is the only antemortem method of positively diagnosing these types, laparotomy not excepted.

Recently a nurse asked that her pelvis be roentgenographed as she was about to marry. This unusual request was from a trained individual who realized the gravity of child birth. It makes one wonder why more such requests are not made. Even the ignorant pregnant woman desires to know if "every thing will be all right." Physical examinations for disease are required in several states before marriage but seldom is the woman's fitness to deliver a normal-sized child questioned. The grossest deformities of her pelvis are not considered a detriment even though her first labor will be fatal to her and her child if not conducted by one specially prepared for all complications. A good share of the 17,000 annual deaths in this country resulting from labor could be spared if there existed a more general application of the X ray for investigations of this sort.

With maternal conservation the watchword of the day the above paragraph is more than speculative.

NEWBORN

Infants are subject to trauma in the birth process. Without the X ray many of these injuries are overlooked. With it, early diagnoses can be made and proper treatment immediately instituted. Fractures and dislocations of any of the long bones are not uncommon. Skull fractures are more difficult to locate.

We have also demonstrated dextrocardia, pyloric stenosis, enlarged thymus, effusions in the thorax, atelectasis, and tumors.

OTHER USES

We have also demonstrated the extent of upward and lateral displacement of the foetal head during the use of hydrostatic bags, thereby showing the ease with which a cord may prolapse following the expulsion of the bag. We have also shown a transverse presentation accidentally produced in the introduction of a metreurynter.

There are many other uses to which the X-ray can be applied. Pseudocysts, obscure presentations, deflexion attitudes, and questionable multiplicities are easily settled. Associated surgical conditions in pregnancy and the puerperium are not uncommon. Calculi of the urinary and biliary tracts have been located and surgically treated without interruption of pregnancy.

The presence of foreign bodies in the generative organs is easily determined. This statement when applied to obstetrics, may appear rather peculiar. But catheters, bougies, and pessaries used in various minor operative procedures have been lost or forgotten. A Y-shaped, brass pessary was recently located in a freshly delivered placenta by one of my colleagues. The patient, when questioned concerning it, denied all knowledge of its existence. Unfortunately in this instance no roentgenograph was taken. Discovery might have created a knotty problem. A similar instrument was located in the fundus uteri of an amenorrheic stout woman whose physician had inserted it as a cure for sterility. A roentgenograph revealed it although she had supposed it removed years ago. Its removal was followed by pregnancy which might never have occurred without the roentgenograph.

In my review of the literature I have not come across the utilization of the X-ray in the diagnosis of intra-uterine death. However during the past year in 3 cases where foetal death was suspected X-ray revealed overriding of the skull bones with asymmetry of the head. This to me indicated foetal death and the subsequent clinical course bore out my belief. Therefore overriding of the skull bones with cephalic asymmetry are signs of foetal death and are the only positive signs of intra-uterine death.

EFFECT ON MOTHER

No appreciable effect on the mother has been noted in the past 2 years. I have been told that I have unknowingly produced sterility. Even temporary sterility is out of the question as exposures in most instances have been less than those required for

sterility. Fraenkel's experiments on profligate lower animals showed that the ovaries will stand a great deal before losing their function.

Not a single instance of X-ray burn has occurred.

EFFECT ON FETUS AND NEWBORN

Thousands of women are continually subjected to the X-ray for other than obstetrical conditions before and during the early months of pregnancy without effect on the ovum. I do not mean to imply that the X-ray cannot kill an ovum, but refer to the use of the apparatus in diagnosis. The modern abortionist uses it to kill.

Most of my cases were fearful of injury to the babe.

Werner recently mentioned three children of mothers exposed during pregnancy to X-rays 5 years previously. The children were normal in all characteristics except height and weight. How and why he attrib-

uted the child of a woman treated for uterine myomata conception occurring between exposures. Stettner now adds two instances in which the eyes, ears, and genitals were deformed. Deficient growth, inferior mentality (as in Aschenheim's case) and disturbed co-ordination also existed.

Nuernberger's experiments on lower animals showed the spermatozoa, ova, and off-

spring to ascribe the occurrence of club foot in a child to the fact that its mother had sprained her ankle during pregnancy. Many women who have never come near the apparatus have brought into the world similar children and even worse monstrosities.

Exposures in my cases were limited to seconds while Aschenheim's and others required minutes for their treatments. We wish to go on record as having given one

Not a single instance of maldevelopment, physical or mental, has occurred in my series.

TOXEMIAS

We have found with others that in certain toxemias of pregnancy it was possible to demonstrate focal infections in the sinuses and around the teeth which, when removed greatly benefited the patient. As a prophylactic measure the X-ray plays an important rôle here as well as in medicine. In cases of hyperemesis treated with the duodenal tube, fluoroscopy will show whether or not the tube is in the duodenum.

MEDICOLEGAL

Operating for tumor and discovering pregnancy requires little comment other than that the physician is usually held liable. Avoidance of unsavory criticism and great expense can be accomplished by resorting to the X-ray when there is the slightest shadow of a doubt.

The medicolegal status of the X-ray in other fields has been established for a long time. In obstetrics its position is still questioned. On the basis of our experimentation, we believe that there is no ground for damages against the physician using it for diagnostic purposes should abortion, foetal deformities, or failure to have more children follow its use.

The following shows its importance as a means of protection for the obstetrician.

Within the past year a patient returned to the hospital about 6 months after delivery claiming inability to walk because of pain in the pelvis. She had been told on arriving home, that she had a fracture of the right pubic bone and a dislocation of the right sacro-iliac joint brought about by a German delivery. This was

tion is neither physiological nor pathological. The former because it does not always show and the latter because there is no resulting morbidity when it does occur.

CONCLUSIONS

Many in the profession rightly believe that there is more malpractice in obstetrics than in any other branch of medicine. There should be less. The science is rapidly developing. Newer methods are readily being recognized and adopted. There is still much hidden which time and further investigation will disclose. In the meantime there exists this valuable means of conserving maternal and foetal life (many opponents notwithstanding).

The judicious use of the X-ray in our 250 cases at the Chicago Lying-in Hospital has revealed in the short time that it has been in use a great number of facts which would otherwise have been unrecognized.

Today we can show the student by plates what cannot possibly be demonstrated on the manikin or model, while the obstetrician himself can learn to depend on it as his

(1) (2) (3)

To Commander Ralson of Grant Lakes I express my gratitude for his assistance in my pelvimetry experiments.

NOTE.—Since reading this paper an article relating to X-ray diagnosis of intra-uterine foetal death has appeared in the June, 9 number of *BRITISH Gynaecology and Obstetrics*.

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This brings us to Lynch's study of pelvic articulations during the latter part of pregnancy and labor. He reported and illustrated separation of the pelvic joints. My study shows this as a rather infrequent occurrence. The plates of Warnke also show this infrequently, thereby proving that joint separa-

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ADDISON'S DISEASE COMPLICATING PREGNANCY LABOR, OR THE PUERPERIUM

By GILBERT FITZ PATRICK, M.D. F.A.C.S., CHICAGO

ADDISON'S disease is defined by Osler as a disease characterized by muscular and vascular asthenia, irritation of the stomach, and pigmentation of the skin, due either to tuberculosis or atrophy of the adrenals, or to degenerative changes in the chromaffin system generally.

The disease is fairly rare. It occurs less frequently in women than in men, in the proportion of 1 to 9. Only a few reports are found in literature of cases of Addison's disease complicating pregnancy or the puerperium, and in American medical literature I do not find the record of a single case. Altogether in the literature, there are reports of 31 cases, of which short histories are given below. To these I add a case recently observed by myself.

CASES OBSERVED DURING PREGNANCY

CASE 1. Reported by Barker, *Lancet*, Lond., 1835, i, 351. Patient age 4 had suffered with the disease for ten months during which time she was pregnant and gave birth to a dead fetus. The patient had foci of the suprarenals, verified at autopsy.

CASE 2. Reported by Jacquet, in Brouardel's

was 40 years old and a VI-para. The symptoms of Addison's disease commenced about 6 months before she last became pregnant. There was nothing of note during the early months of pregnancy but from the fourth month —

typical disease of the suprarenal glands.

The second case was very similar according to French but he does not give any details. The patient died also.

CASE 3. Reported by Vogt, *Verhandl. d. Gessell. f. Gynäk.* 1913, xv, 113; 249. Woman aged 31 years, primipara. Onset of disease —

During pregnancy pigmentation and other symptoms of Addison's disease were much accentuated and after labor the points of election of gravidic melanoderma remained intensified. The further

general anæmia, atrophy of the heart, hyperplasia of the spleen, etc.

was paid over death and melanoderma in addition to the pigmentation and the occurrence of dark spots all over the body.

CASE 4 and 5. Reported by French, *Lancet*, Lond. 1908, i, 1393. In French's first case the

1914, xxv, 455. Primipara, tubercular 4 months pregnant. The first two months of pregnancy had a normal course. Toward the end of second month prostrated and alimentary vomiting, intense gastric cramp and general anæmia. (See

dark colored intense pigmentation asthenia progressively increased The patient could not stand even for a short time. Blood pressure 100 mill

My personal case is as follows

State on admission At term Labor began about 11 hours after admission and lasted 4½ hours The pains were regular and the course and delivery

renal lesions to tuberculous

CASE 9 Reported by Falco Rassegna di ostet e ginec 1915 xxxi, 434 Age 26 years, VI para History of disturbed and scanty menstruation The

postpartum The temperature then rose suddenly from 99 to 102 and continued to rise very irregularly on the days following reaching 103 on June 6 The condition was thought to be a septic endometritis, secondary to labor

I saw the patient for the first time June 12 On examining her then the prominent symptoms, be

y slow grasp
tillness and
(4) area of
komen, tym-

abdominal muscular contractions good Fetus weighed 2,500 grams Lochia normal First days of

sure of 66
diastolic of 52 pulse pressure 14, pulse 90 temperature 10 respirations 6 respiratory suspensions 25 seconds

The clinical history showed nausea, continued severe headache, aching feeling over body severe leg pains, weakness, restlessness, nervousness

the symptoms before death occurred The culture reaction for tuberculous in this case was positive and the author thinks that the Addisonian symptoms were due to a tubercular lesion of the suprarenals Syphilis may be ruled out

CASE 10 Reported by Roten, Gynaecol bevet Genève 1915 xv 11 says that one case of Addison's disease complicating pregnancy was observed at the Basle clinic but does not give any particulars

autopsion with Addison's disease Adrenal and

CASES OBSERVED IN THE PUERPERIUM

CASE Reported by Wilkin, Lancet 883

in administration of thyroid extract was discontinued June 18 Blood cultures were negative for bacteria Vaginal smears and catheter urine gave some streptococci on culture Wassermann reaction negative Blood count showed 17,500 white blood cells lymphocytes 5 per cent large mononuclears per cent neutrophils 94 per cent

chocolate-colored spot about arms and neck, mucous discoloration of lips and cheeks large dark
her once like
became ap-
o abdominal
nausea and
Died after 3

The study of Addison's disease in pregnancy has an interest first on account of the connection of the suprarenal glands to the sexual apparatus Disturbances in the glandular secretions cause irregularities or inhibition of menstruation or sterility The exact mechanism of the suprarenal secretion on the ovarian

or other severe illness

known.

article in

1912 Surg. Gynec. & Obst. The pathophysiology of the suprarenals has, furthermore, a special interest during pregnancy and the puerperium not only on account of the direct effects of the glandular functioning in these states, but on account of the reciprocal action of the gravid state upon the suprarenal functions. There seems to be little doubt that gravity demands and effect cannot be

is

is

Of course also divided as to whether there is an increased or reduced secretive activity in the medullary zone. Some investigators have found an increased quantity of adrenalin in the blood of the gravid in all periods and

suprarenals, other internal secretory glands act in a compensatory way to supply their particular secretion or to what extent is not known.

We will now consider the reciprocal effects of Addison's disease and pregnancy, labor and the puerperium.

As regards pregnancy complicated by Addison's disease

Pregnancy Grunli's case belongs to the latter type and those of Seta, Miller and Jung and the others.

Pregnancy does not as itself predispose to Addison's disease in a patient whose supra-

renal the effects of faulty functioning of the glands at a time when they are expected to

do even extra work are more manifest in the organism of a pregnant than in a non-pregnant woman. This also applies to cases where pregnancy occurs in the course of Addison's disease, and the intensification of pigmentation and other symptoms during this period as noted in several cases in the series, supports the view

an unfavorable state of things, debilitating or impeding the normal powers of defense of the organism and consequently accelerating any morbid process, such as a latent Addison's disease.

The influence which pregnancy, labor and the puerperium exercise on Addison's disease is frankly bad if we judge by the effects in the series of cases quoted. In the 11 cases, 5 of the mothers died before they had reached term. All of these deaths apparently occurred within a short number of days after labor. In the fourth fatal case, the woman went to term but died suddenly 28 days after the birth. The results are evidently grave for the mother and the eventual history of some of the patients in this series is not known.

As regards the child in Barlow's case the foetus was dead. French's two cases were induced abortions with dead foetus. In Vogt's case the child was prematurely born. Gush's case was a spontaneous abortion with a dead foetus. If the child lives to term, however the prognosis is good.

In those who survived the gravid state there were intensifications of the symptoms in the puerperium. In Miller and Fleming's, Jacquet's and Senta's cases intensification of pigmentation is distinctly mentioned.

From the series of recorded cases it may be deduced that Addison's disease already existing or becoming manifest in the course of pregnancy or of the puerperium has its already bad prognosis aggravated and its symptomatology intensified.

It is not easy to estimate exactly the effects of Addison's disease on the course of pregnancy, labor and the puerperium. Experiments on animals have shown that capeculectomy was followed by early abortion in gravid

animals. Clinical observations as in this series of cases, are too few to enable a definite opinion to be formed. While French's, Vogt's, and Gush's cases ended in abortion spontaneous or induced, all other cases apparently went to term. An unfavorable influence of Addison's disease on the course of pregnancy need only be anticipated if the disease is very advanced and the patient's general condition poor. In such cases abortion or premature labor must be the rule, due rather to the general state than to the alteration in the suprarenal glands.

As regards the influence of Addison's disease during labor in none of the recorded cases was there any noted disturbance during the birth. The uterine and abdominal muscular contractions were noted always as good and sufficient. There was no inertia. If adrenalin plays any important part in the mechanism of labor the loss of suprarenal adrenalin during labor must have been compensated for in some other way.

The disease seems also to have had very little effect upon the course of the puerperium.

questionable how far the process of lactation was affected by the disease or how far lactation may have been a factor in the death of the mother soon after the birth in cases where it occurred. Whatever may be the causes, the puerperal state and lactation seems to have a very damaging effect on the course of Addison's disease. I wish to draw particular attention to one symptom which I observed in my own case and which I do not find mentioned in other case reports. I refer to the drawing, slow speech and decreased mentality. The decreased power of the patient to grasp ideas was very marked.

In my own case the feature that at once struck me when I first saw the patient was the very typical bronze discoloration. The persistent headaches, nausea, and vomiting and the aching all over the body with the feeling of very great weakness were all in keeping with a diagnosis of Addison's disease and the subsequent rapid recovery from the symptoms after administration of adrenalin and thyroid extracts confirmed me in my

view. The slow mentality and drawing answers might be considered as due to general asthenia.

Another point which greatly interested me was the abnormal nature of the temperature curve. A study of the temperature charts during the pyretic condition of the patient will show at once that it was not comparable to the ordinary temperature findings in cases of streptococcal or similar puerperal infections but that there was some abnormal factor in it.

() As a practical conclusion we might seek to know what should be the attempt to follow.

As an interruption need be feared. But if the disease has already affected the general state in an advanced degree the asthenia may be so great as to bring about a spontaneous abortion or to justify an induced one. The few cases on record do not permit any judgment to be formed as to the necessity for interruption of pregnancy. The maternal prognosis is in any case bad on account of the Addison disease itself which will presumably run its course.

1. In this case the child has lived 14 years and is well. The obstetrical conduct in ordinary cases should be limited to the medical treatment justified and only to intervene when circumstances absolutely demand it. In the puerperium especially the obstetrician should seek to remove all possible causes which may render it pathological. Lactation ought to be forbidden, as it renders the patient weaker.

The patient has been followed since she left the hospital. The bronze coloration is still evident especially in the face.

When manipulation is continued in the lumbar area.

pressure over the lower lumbar area. There is some muscular and vascular asthenia.

I may add that the patient felt the

some of the patients, rather than on a local cause.

While any discussion in regard to the etiological factors connected with Addison's disease is outside the scope of this paper I wish to say that the von Pirquet and complement fixation tests for tuberculosis have so far given negative results.

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ADOLESCENT RICKETS

REPORT OF 5 CASES ORTHOTOMY FOR GENU VARUM AND VALGUM

BY PHILIP LEWIN M.D. CHICAGO

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IT is the purpose of this paper to present briefly a discussion of this subject and to show the results obtained in 2 advanced cases. Case 1: a young lady of 23 with severe genu valgum. Case 2: a boy of 16 with genu varum.

Among those who have presented valuable articles should be mentioned Ollier, Goldthwaite, Painter, Osgood, and McCrudden, Poncelet and Lenche, Tubby, Robert Jones, Elmslie, Blairhead, Little, Lucas, Barber *et al*. Since the publication of the excellent paper by Horwitz in 1909 there have been comparatively few contributions to the subject. Tubby states that late or recrudescence rickets has been described by Dedever and Ollier. Drewitt in 1880 showed at the Pathological Society in London a case of active rickets in a boy aged 10 years the diagnosis being subsequently verified postmortem. Clutton reported the onset of a rachitic deformity in a girl between 10 and 11 years. He also reported a case in which the deformity came on at 12 years. Cantley had a case in a girl 11 years. She had rickets at 4 years and a recrudescence at 10. In 2 cases of Barlow and Berry the diagnosis was verified postmortem. Jenner referred to a case of rickets coming on in a girl of 19 years. Robert Jones showed a case at The Liverpool Medical Institute. Recrudescence, late secondary or protracted rickets is rare. Many deny there is such an entity as rickets originating at puberty and not a recrudescence. There is no *prima facie* reason against it. At this period of life the growth of the long bones has again become very active after a period of comparative quiescence, and if errors of diet or endocrine disturbance exist manifestations of rickets may reasonably be expected. Experience proves that cases free from rachitic history yet showing anything like the generalized epiphyseal enlargements of the active stage of typical rickets, are

not often seen. Kirmisson maintains that if the liability to protracted rickets during the whole growing period is accepted the liability to the onset of the rickets during the same period must be granted. Researches of Mikulicz on the nature of the pathological processes in genu valgum point the same way and McEwen's views support him. Perhaps the fairest statement which can be made at present is that, although the cessation of the rachitic process may be occasionally delayed to later childhood or adolescence, the primary onset of the disease after infancy is still *sub judice*. It is incorrect to diagnose rickets from

ETIOLOGY

Age. Adolescent rickets, as its name implies, is rickets occurring during adolescence. There is considerable discussion of the question as to whether it is a definite entity that is a condition *de novo* or a recrudescence of an infantile condition that has remained dormant during a period of comparative osteogenetic inactivity. In the 5 cases herein reported the age of onset was 14, 14, 16, 10 and 18 years respectively.

Sex. In the experience of the writer females are more prone to this affection than males. Females are more apt to develop scoliosis, males, deformities of the extremities.

Heridity. There is no definite evidence upon which to base an hereditary etiology.

Color. In contrast with infantile rickets, none of the cases in this report occurred in a negro.

Nationality. It seems noteworthy that none of the present series of cases occurred in children of Italian, or Syrian parents, among which peoples so large a proportion of infantile rickets occurs.

Infection. In only 1 of the cases is there any mention of infection. That is, in Case 1 the knock knees were made worse by an attack of influenza. It appears to have had only a casual relationship.

Trauma is evidently of no great importance.

Metabolism. In the writer's opinion it is entirely a question of bone metabolism. However the subject of metabolism is very closely allied with two important factors, viz. endocrinology and vitamins.

Endocrinology. It seems that there occur at the time of sexual development, certain as yet somewhat indefinite changes in all the endocrine glands through the inter relationship and inter activity of which there is produced a disturbance of osteogenesis resulting in deformity. The explanation of the exact nature of these changes is speculative. For example let us consider the case of the female. Until the age of 14 years all her endocrine glands are functioning normally and a balance of power and effect obtains. At the age of 14 her ovaries take on their normal function, develop and add their internal secretion and this disturbs the "balance." It is possible that excess of ovarian secretion stimulates the thyroid which in turn activates the parathyroids, thereby causing an increased output of calcium which renders the long bones softer and they bend.

Involution of the thymus coincides normally with adolescence, and disturbed thymus balance might cause bone and muscle changes.

PATHOLOGY

The pathology of adolescent rickets concerns itself practically entirely with the gross changes occurring locally in the parts affected viz. knees, hips, spine, feet. In case of renal dwarfism the nephritis is important. As no tissue was removed from either operative case no microscopic description can be given.

In genu valgum the inner condyle of the femur is markedly enlarged and the joint surface slants downward and medialward. In genu varum the opposite condition is found.

In genu valgum the muscles and capsule on the inner border are markedly stretched

and weakened. The internal lateral ligament and crucial ligament are also relaxed. The corresponding tissues of the outer border of the joint are shortened. In genu varum the stretching and weakening are on the outer border of the knee. According to Keith's law of ligaments, no ligament is ever used for the continuous support of any joint or part.

If the muscles on the inner side of the knee give way the strain falls on the internal lateral ligament, the ligament lengthens, as every unsupported ligament must do when subjected to continuous strain so do the parts of the femur and tibia to which the ligament is attached. A small, then a larger gap appears between the articular surfaces of the internal femoral condyle and inner tuberosity of the tibia. The condition of knock knee is thus produced, because the abnormal strain on both the internal and external femoral condyles alters the rate of growth in the outer and inner portions of the epiphyseal lines. If on the other hand the outer muscular supports give way a bow leg is produced.

The primary cause of static deformities of the knee lies in a defect or change in the osseous system but the structures which are immediately responsible for the deformity are the muscles around the joint. In a rachitic child the muscles are flabby and have lost their reflex tone, the ligaments of the knee joint have thrust upon them a static muscular function with the result that deformities occur. If these deformities are to be prevented the lower extremities must be relieved of weight bearing until the

which they act. As soon as the normal bone rigidity has returned, the muscles resume their normal static, reflex function.

SYMPTOMS

Deformity. The symptom which brings the patient to the hospital is deformity usually genu valgum or varum.

Pain. When the deformity has existed for some time, there may develop pain.

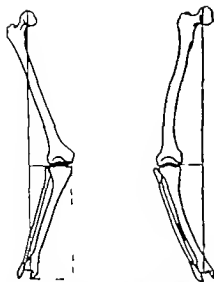


Fig. Schematic drawing of genu valgum and of genu varum. (After McEwen)

Weakness is due to the mechanical disturbance caused by the deformity.

Decrease in height is due to the deformity.

The cosmetic effect of the deformity especially in the girl is the inability to wear short skirts.

The X-ray clearly defines the deformity but the gross bony changes are not apparent.

DIAGNOSIS

The diagnosis is easy when a good history is obtainable and a physical examination is made, and the X-ray corroborates the diagnosis.

Osteomalacia occurs in older people. It is common in females and very rarely found in males. (See report of Kanavel, Elliott, and Nadler.) It is a generalized condition. There is marked absorption of lime salts as shown by X-ray.

Paget's disease (osteitis deformans) occurs in older people, usually past 40 and more commonly in males. It is usually a generalized condition i.e. the following syndrome is present: bowing of a leg, increased size of the skull, cervicodorsal kyphosis, diamond-shaped abdomen, simian type and areas of absorption in the long bones as shown by the X-ray. (There is a monostotic type.)

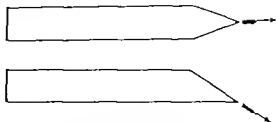


Fig. 2. Drawing showing shape of cutting edges of chisel (below) and osteotome (above).

PROGNOSIS

The prognosis as to life is good. The writer has not found in the literature any statement to the effect that adolescent rickets shortens life. Barber warns against osteotomy in renal dwarfism because 1 case died 10 days after osteotomy. He believes uremia is inevitable in 7 fatal cases the ages were 11, 14, 14, 15, 15, 16 and 16. His oldest case alive is 30 years. Blood-urea determination and kidney function tests should be of value in making a prognosis in these cases.

As to correction of the deformity the prognosis is very good.

TREATMENT

The writer's experience advises against the use of the osteoclast and recommends osteotomy.

Technique. The field of operation is carefully prepared on the preceding day. At the time of operation, another preparation is done and over the point selected a small incision is made and a chisel (not an osteotome, see Fig. 2) is inserted. This is worked back and forth parallel with the long axis of the bone until it pierces the periosteum. Then, with the chisel pressed very firmly against the cortex, the cutting edge is turned through an angle of 90 degrees until it lies transverse to the axis of the bone. A piece of

tato masher the bone is chiselled about three quarters the way through. The remainder of the fracture is accomplished manually. A green stick fracture is highly desirable. If a complete fracture is made it is important

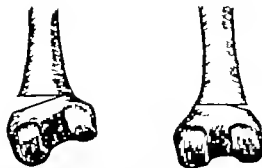


Fig. 3. Supracondylar osteotomy

that the fragments be held so as to prevent prodding of the muscles, which is always a source of much discomfort. The wound is

up near the groin before the operation was started) is pulled down and the limb encased in a layer of sheet wadding and roller bandage. Felt pads protect the iliac crests, knees, malleoli, heels, and points of fracture, and a plaster-of-Paris cast is applied. As the cast sets, slight overcorrection of the deformity is obtained. If the fractures are above the knees a double spica is necessary. If below the cast should extend from the perineum to the toes. The legs should be elevated in bed.

times daily before meals (2) a high vitamin diet containing as much of the following as possible: cream and butter, spinach, tomatoes, cabbage, onions, beets, beans, peas, turnips, carrots, orange juice, lemon juice, crisp bacon, fresh fruits. In this diet all 3 groups of vitamins are included: fat solubles (a) and (b) and water solubles (c). (3) As much sunlight and fresh air as possible.

Castration is usually not indicated. In extreme, acute cases there might be a possible indication. This procedure has been recommended because of its value in some cases of osteomalacia.

Fluorophosphor and liver oil is indicated because the disease is more



Fig. 4. Osteotomy of femur (After Olier)

It seems rational to administer some of the endocrine glands in selected cases, especially thyroid and hypophysis.

Wolff's law. This law applies to adolescent rickets. Quoting from Freiberg's review of Wolff's article: "Every change in the form and function of the bones or of their function alone is followed by certain definite changes in their internal architecture, and equally definite secondary alterations of their external conformation in accordance with mathematical laws." In a few words it means, "function determines form." Therefore, after correction of the deformity as recommended above, the internal and external forms of the bones become more normal.

CASE. F. McD., white girl, age 23, born in Chicago, of Irish parentage, referred by Dr. James H. Hutton. Admitted to St. Luke's Hospital, February 20, 1927, complaining of knock-knees, pain in knees, difficulty in walking.



Fig. 5 Case February 30 '42 before operation
 Fig. 6 Case Rear view before operation
 Fig. 7 Case April 5, '42 6 weeks after operation

Fig. 8 Case Six weeks after operation
 Fig. 9 Case 1 in a month after operation.
 Fig. 10 Case Five months after operation

walked. From 14 until 21 years the stiffness and pain gradually disappeared and the knock-knees remained stationary. Two years ago she had a severe attack of influenza since which time the pain has returned but there is no stiffness. She has become more knock-kneed and walking is increasingly more difficult. The knees become so weak while walking that she is forced to rest

3 to 4 days. Dysmenorrhea uncommon.

Patient knows very little of her family which

she weighed 17 but now weighs 103½ pounds. She is 4 feet 9 inches tall.

Examination shows the upper extremities normal. There is bilateral genu valgum of the lower extremities much worse on the right side. When the internal femoral condyles are approximated, the malleoli are 11 inches apart. There is also bilateral hall valgus of moderate degree.

On February 20 the urine showed albumin, hyaline casts, red cells and leucocytes. On February 1942 a supracondylar osteotomy was done. On May 11 she is 106 inches taller than before the operation.

was a transverse fracture of the right femur in lower third. The upper fragment was displaced slightly outward. Lateral position was very good.

Basal metabolism test showed +2.3.

CASE 2. Joe G. white boy, age 16, born in Chicago of Polish parentage. Admitted to Cook County Hospital, October 25, 1930 complaining of bow-legs.

Patient states that he had bow-legs when a young child but that he outgrew them. A photograph of him at 3 years shows straight legs. At about 14 years of age when adolescence began he noticed that his legs were bowing. (At this time

and well 2 sisters and 1 brother dead, cause unknown.)

Patient attended public school until he reached seventh grade at 14 years. He is employed in a factory and his work requires that he keep sitting position. He sleeps and eats well and has been

in good health but the femora are also affected. While standing with heels and toes touching, the internal condyle of the right femur is 3 inches



Fig. 1 Case 2 Legs straight 1 year of age
 Fig. 2 Case 2 Showing large breast
 Fig. 3 Case 2 Before operation

Fig. 4 Case 2 Standing alone 6 weeks after operation
 Fig. 5 Same as Figure 4

from the midline of the body and the left is 2½ inches from that line. There is a 10-degree bilateral genu recurvatum. Decidedly protruded feet.

Movements are normal.

General examination reveals no pathology.

Diagnosis: Genu varum, genu recurvatum, pes planus.

Knees began to bow. Comes for treatment of coxalgia.

CASE 4. R. F. white girl, age 17, born in Indiana, of Russian parentage. Entered St. Luke's Hospital on the service of Dr. John L. Porter (for whose permission to report this and the next case, I am

dat. of entrance he noticed that his left leg was

ated

CONCLUSIONS

It is a very interesting fact that these deformities either make their appearance, or if present, grow markedly worse con-

cident with adolescence. During this period increased demands are made on the organism and if at that time the general metabolism and especially bone metabolism is disturbed deformities are prone to occur. It is probable that a combination of bone softening plus heavy lifting or carrying causes some cases. Others are due to relaxation of muscles and ligaments and in this type infections may be a causative factor.

Certain definite factors occurring at a certain definite cycological time. These factors are:

1. The growing period for that individual
2. Athletic overindulgence as seen in the high-school boy
3. Physical overwork, such as carrying heavy loads as in the case of the grocery boy or the young girl doing domestic work which is too strenuous for her
4. General food deficiency
5. Particular food deficiency
6. Stimulated endocrine activity
7. Suppressed endocrine activity
8. Disturbed endocrine activity i.e. abnormal chemical secretions

It is the writer's belief that the whole question is one of bone metabolism and especially calcium metabolism due to the above-mentioned factors, and the immediate cause of deformity is a disproportion between the carrying-power of the bones and the load they are forced to carry.

The writer believes that corrective measures should be instituted and that operation is not attended by unusual risk.

The writer desires to thank those whose names are mentioned in this paper and especially Dr. John L. Porter for the privilege of reporting Cases 4 and 5 and Dr. J. H. Harrison, Case 6.

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Fig. 1. Dr. A. B. Abscess in the lower end of the tibia twenty days after acute osteomyelitis. Note that there is very little sclerosis of surrounding bone.



Fig. 2. Dr. A. B. Eighteen months after evacuation of the abscess through small drill hole. Note that the cavity is not entirely obliterated.

years warrants me in saying it—permanently. Failure thus to relieve the pain suggests the presence of a second abscess such was the condition in a case treated by my method reported to me by a colleague.

Failure of prompt healing of the soft parts will of course arise if there be infection either from the operation itself or from bacteria in the evacuated pus. I have had one such experience but the infection a mild one, subdued under wet dressings without further operation.

Since the publication of my previous article reports of recent operations for chronic bone abscess have been made by Bevan by McWilliams, and by Bancroft.

Bevan (2) presented two adult cases of small

other infection. In both cases Bevan made a 5 inch incision freely "gouged out" the bone gouged and curetted the abscess cavity flushed the wound with hydrogen peroxide and then with alcohol and at once sewed the soft parts completely. In both cases these healed *per primam*. Both patients were kept in bed 10 days but it "requires another 5 or 6 weeks for the repair in the bone to be completed." The procedure is one Bevan had been employing for a long time.

McWilliams (3) reports a chronic central abscess of the tibia, with pain for 2 years, probably resulting from a stab wound of the bone a year earlier. Through a six-inch incision he chiselled a furrow 3 or 4 inches long in densely sclerosed bone down to the medullary cavity from which he evacuated an abscess of the diameter of a quill and 3 inches in length. The upper part of the wound was closed by sutures, the lower part was left open for three Carrel tubes. On the fourth day of daktinization no organisms were found in

before the other in the femur appears to have been quite like Case 1 in my first paper and like it, without antecedent history of bone or

smears. The wound was then entirely closed by secondary suture. It healed promptly and the patient was discharged cured on the twelfth day.

As compared with the generally practiced tedious treatment by open osteotomy and repeated gauze packing both Bevan's and McWilliams' methods of treating chronic bone abscess are distinctly steps in advance. But that they both secured early healing—one after primary the other after secondary suture—confirms my faith in the rationale of the still simpler method that I have advocated. In the absence of any statement to the contrary it is presumable that both of Bevan's patient were afebrile—as is so commonly the case in this affection. He mentions no smears from the pus and no cultures. It seems to me quite likely that he secured primary union not because of his vigorous mechanical attack upon the bone and his chemical antiseptics but because the abscesses were sterile. McWilliams' patient was also presumably afebrile. He refers to no smear examination of the pus and "the cultures taken at the time of the original operation were contaminated so the causative organism is unknown. In his case too the abscess may well have been sterile or nearly so.

Bancroft (4) reports a small chronic medullary abscess in the upper third of the tibia, which like McWilliams, he treated by debridement—without however the important detail of secondary suture. In his case there had been a localized thickening of the bone for 17 years. The pain present at the outset of the disease soon ceased but it had recurred in recent years, was intermittent, not severe and not associated with tenderness. Bancroft chiselled through dense bone evacuated thick pus from a cavity about 1 centimeter in diameter, curetted this cavity, trimmed off the overhanging bone and sutured across the space the periosteum and the skin leaving an opening in these tissues large enough for four Carrel tubes. How long these tubes were maintained in the wound is not stated. The

through a partially sutured wound. The pus

I am quite prepared to believe that chronic bone abscesses unassociated over a limited period of observation, with any elevation of temperature are not always sterile. But it seems safe to assume that their contained organisms are attenuated. We can hardly depend upon killing contaminating bacteria in the freshly cut surfaces of bone muscle fascia, and skin by a single treatment with hydrogen peroxide and alcohol.

In McWilliams' case there was no tenderness, and no abscess was shown by the roentgenogram. It did show however a fusiform thickening of the bone 3 inches long. Since the abscess within it was also 3 inches long it could have been tapped at any level so that area—a procedure which seems to me preferable in these cases, to the osteotomies performed by McWilliams and by Bevan, with their greater risks of later trouble.

Simple evacuation through a drill hole is not at all suitable of course for those cases of non-discharging bone suppuration with high fever. In these cases we are dealing in my experience no longer with a "chronic bone abscess," if at all, but with a (recrudescent) acute osteomyelitis. At any rate the process is a virulent one and demands vigorous surgical attack. Whether the method is suitable

has not been known.

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to make me offer the suggestion that in these
— 11 hours

weeks. It was
by free osteotomy and continued drainage

1
Dr. A. B. dentist age 3 referred me August 4
1920, by Dr. Philip H. Lutenstein, who operated upon
the age of 1 for acute osteomyelitis of the left

day was 99.5

On August 13 he arranged to enter Mt. Sinai Hospital. During August 3 to 5 it was noted that the evening (rectal) temperature was 100.5 to 101 that the pain had somewhat increased and that there was, as before, a point of great tenderness

Slack of the medullary canal in upper half of the lower half, was invaded by bone but in the lower

Smears showed that it contained a few cocci and cultures developed pure growth of staphylococcus aureus. Tincture of iodine was injected into the cavity. The middle of the skin wound was left unanesthetized since the bone is here subcutaneous, no drain was needed. Wet dressing

McWilliams makes no mention of my method of treating chronic bone abscess, and refers to my earlier communication, which dealt only with the medullary type as an article on Brodie's abscess. On the basis of Brodie's description he is quite justified in doing so. Several generations of medical students have been taught, however, to think

pockets, in whatever part of the bone may serve only to obscure the student's conception of the disease. It seems to me better to speak of "cortical abscess" which is pictured in all the textbooks (as Brodie's abscess) and "medullary or central abscess" to which but few textbooks even refer. Indeed in the latest, very recent edition of his work on *Surgical Pathology* Sir Anthony Bowlby again makes the statement "Chronic abscess is never met with in the shafts but always in the cancellous tissue of the epiphyseal ends. We should eliminate from our future textbooks the statement that Brodie's abscess is usually tuberculous. It is of a piece with the lingering notion that fistula-in-ano is commonly tuberculous."

Concerning the pathogenesis and pathology of chronic bone abscess there is much that is debatable. The pain is presumably due to the pressure of the pus since it disappears as soon as this is drained. If however the abscess was present before it caused pain, what produces increased tension at a time when no organisms are recoverable from the pus? It seems to me more likely that the pain begins when pus is formed in a cavity containing dormant bacteria and perhaps granulation tissue. This finds support in the pathology of chronic bone abscess as explained by Alexis Thompson (5). He studied three specimens secured by amputation and by resection, and describes a "quiescent stage" in which "the lesion is represented by a minute cavity in the bone filled with serum and

recurrence of symptoms. A roentgenogram made 8

lined by a well-defined membrane resembling the periosteum of young bones, the latter developed from granulation tissue which, at the outset had at once walked in the invading staphylococci a *maturo stage or stage of abscess* "the lining membrane becoming again converted into granulation tissue and the serous contents transformed into pus, from which the staphylococcus aureus can be isolated and a *stage of perforation* and external discharge. The last is not often encountered. Thompson explains fluctuations in the pain in the "stage of abscess" by variations in the relative production of pus and erosion of bone to accommodate it. He describes, however, only an active process and makes no reference to abscesses that have become sterile.

If the onset of pain signifies the recent formation of pus then the case above reported

should be regarded as having been, at the time of the operation a *subacute* rather than a *chronic* abscess. It seems reasonable to say also that this patient's infection might have developed into a very active process or sub-sided leaving a chronic sterile abscess.

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REPAIR OF TENDONS IN THE FINGERS

By STERLING RUNNELL, M.D. SAN FRANCISCO

been injured. When we consider that the majority of industrial disabilities are from injuries of the hands, and that a successful repair of an injured finger tendon is a rarity, it is apparent that there are especial attendant difficulties which cannot be overcome by the ordinary surgical procedure.

Before considering these difficulties and formulating methods of overcoming them let us think of the hand as a marvelously functioning piece of live machinery and regard it with due respect. Though its tissues are tough and compact its tendons, tendon sheaths, pulleys, joint surfaces and flexible joint capsules all glide on each other so easily and smoothly that there is little in the refine-

stiffen the joint capsules congeal the tissues and lower

Surgical and lowers their vitality that they are an easy prey for

binding adhesions, we must not have infection even in its milder form of inflammation, in which no pus is formed nor must we have aseptic traumatic inflammation as the reaction to pure trauma is almost as binding to movable parts as is the fibrous of infection.

As binding through our arch enemy and trauma is both its direct and by predisposing to infection its indirect cause we must if we

are to achieve success in repairing tendons of the fingers adopt an atraumatic technique.

Handling of the tissues must be reduced to a minimum and really to do this is surprisingly difficult. Every time the tissue is touched a traumatism results. If we keep the delicate histological structure always in mind we will realize the necessity of never pinching or pulling the tissues to the degree of even microscopic tissue strain. The most gentle retraction and sharpest knife-edge dissection is not showing too great a respect for tissues, even if they are at some distance from the tendon. When handling a tendon or sheath never should even a tiny scratch be



Fig. 1. Case B. F. P. Thumb on August 19, 1910.

as a tourniquet we may avoid the unnecessary trauma of sponging and can by clearly seeing the tissues dissect with exactness and a minimum of traumatism.

In a former paper¹ I have endeavored to formulate the methods and principles where by we will meet with better success in reconstructing damaged movable parts.

Reconstruction of sliding mechanism. A tendon alone in the tissues cannot functionate as it will be bound by adhesions. To permit movement back and forth a tendon must have in addition a gliding mechanism. To Dr. Leo Mayer² and to Professor Biesalski

The double photographic exposure shows the degree of flexion obtained August 9, 1910.

much like a mesentery but in the fingers this is absent, being reduced to the two strands of tissue known as ligamentum breve and ligamentum longum.

In repairing an old injury of a flexor tendon of a finger it is not practical to suture the tendon within the finger. In the gap between the tendon ends the sheath will have become obliterated and there is not room in a finger to envelope the suture line with a sufficiently thick free graft of fat to allow motion. The exception to this rule is where the tendon is

shown how a tendon in the straight part of its course is surrounded by a loose fatty tissue called paratenon which is pulled back and forth in its central zone with the movements of the tendon and that wherever a tendon turns a corner it runs in a true sheath in which the surface of the tendon (epitenon) slips freely in contact with the synovial lining surface of the sheath. In other parts of the body a blood-vessel-bearing mesotenon is present throughout the length of the sheath,

which case a fair result can be obtained. Where the suture line pulls through two joints, it is necessary to remove the

¹ An original in reconstructive surgery—atraumatic technique. Abstracted in J. Med. and Surg. The physiological and histological basis of bone transplantation. (Extremity transplantation). Surg., Gynec. & Obst., 1910, 10, 11.

² See HART.

If the sheath of the tendon has been damaged the new tendon will not slip and it will

lined by a well-defined membrane resembling the periosteum of young bones, the latter developed from granulation tissue which at the outset had at once walled in the invading staphylococci a *mature stage* or *stage of abscess* the lining membrane becoming again converted into granulation tissue and the serous contents transformed into pus from which the staphylococcus aureus can be isolated" and a *stage of perforation* and external discharge. The last is not often encountered. Thompson explains fluctuations in the pain in the stage of abscess by variations in the relative production of pus and erosion of bone to accommodate it. He describes, however, only an active process and makes no reference to abscesses that have become sterile.

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REPAIR OF TENDONS IN THE FINGERS

By STERLING BUNYILL, M.D. SAN FRANCISCO

Often injured. When we consider that the majority of industrial disabilities are from injuries of the hands, and that a successful repair of an injured finger tendon is a rarity, it is apparent that there are especial attendant difficulties, which cannot be overcome by the ordinary surgical procedure.

Before considering these difficulties and formulating methods of overcoming them, let us think of the hand as a marvelously functioning piece of live machinery and regard it with due respect. Though its tissues are tough and compact its tendons, tendon sheaths, pulleys, joint surfaces and flexible

stiffen the joint capsules, congeal the tissues of the finger, strangle the nerves and vessels and loss of function will result.

Atraumatic technique essential. Surgical trauma so brutalizes the tissues and lowers their vitality that they are an easy prey for the few bacteria that even in spite of careful asepsis are unavoidably present. In most repairs of finger tendons free grafts are put in and as these have such a low resistance to infection it is imperative that in these cases we use not only superasepsis, but also an atraumatic technique. If we are to avoid binding adhesions, we must not have infection even in its milder form of inflammation, in which no pus is formed nor must we have aseptic traumatic inflammation, as this reaction to pure trauma is almost as binding to movable parts as is the fibrous of infection.

A binding fibrous is our arch enemy and trauma is both its direct and by predisposing to infection its indirect cause, we must if we

infection or trauma insults these perfected parts, a tissue reaction will occur which will bind the gliding surfaces together, thicken and



Fig. 11. 7. Specimen

with as coal.

Operation. The proximal portion of the tendon is found to be coiled up in rounded masses an inch above the wrist and to be become yellowish and friable. After

forearm. If the palmaris longus tendon plus its paratenon is used, it will be necessary to make a longitudinal incision the full length of the graft. A long extensor tendon of the toes plus its paratenon in the dorsum of the foot

(paratenon, as shown in

4 and taken smooths later show the degree of lost function restored to the distal joint of the thumb.

The proximal joint functions normally though not fixed in the photograph.

If the paratenon is not removed intact with the tendon graft, paratenon fat may be gathered from elsewhere and planted sleeve like

is specialized fat and differs much from the tough, short fibered subcutaneous fat. It is elastic and pliable and can easily be drawn a long distance back and forth from its moorings, as can be seen by comparing the mobility of the skin over the triceps tendon with that over the outer side of the arm.

Method of suture. The suturing of a tendon must be very strong, as it must stand the strain for the 5 weeks necessary for the phy-

desired, the extensor tendons to the second, third and fourth toes can be used. They com-

toe and peroneus tertius) and the tibialis anticus will prevent foot-drop. It is necessary, however, to strip off the paratenon in the foot before these long tendons can be withdrawn.

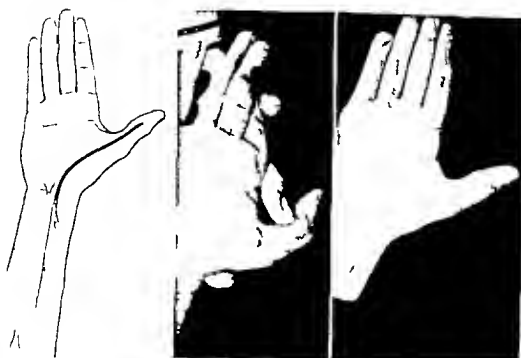


Fig. 1. Case Mrs. L. J. T. shows the flexor tendon, as severed at the base of the thumb on a piece of crockery, resulting in complete loss of power of flexion of the distal joint of the thumb.

Operation. The proximal end of the flexor tendon was, with the aid of strippers, watched a through incision

reached the thumb

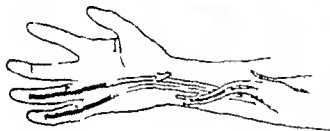
be necessary to graft not only a tendon but a gliding mechanism complete. This means a tendon plus its sheath or a tendon plus its paratenon. The placing of both a sublimis and a profundus flexor tendon in the finger is too complicated. It is found sufficient to sacrifice the sublimis and use the profundus tendon only. The prevention of adhesions by

bra
nor
tendon in a finger

tically are none the worse from the transplanting. Some have even lived through infection. Function keeps a tendon in good condition, just as with bones, and a tendon with all its blood supply. If left without an insertion will become yellowish and friable.

Sources of free tendon grafts. Grafts are easily obtained from the sublimis tendon, the palmaris longus, the long extensors of the toes, tubularized triceps, fascia lata and many other sources. If the sublimis tendon of the same finger is used its upper end may be detached through a transverse incision, 1 centimeter long, in the forearm. It is well here to attach the distal end of the sublimis muscle to the profundus tendon for added strength. The incision is short and transverse for cosmetic reasons and to make a shorter distance for adhesions to form along a tendon in the

their original size and appearance and prac

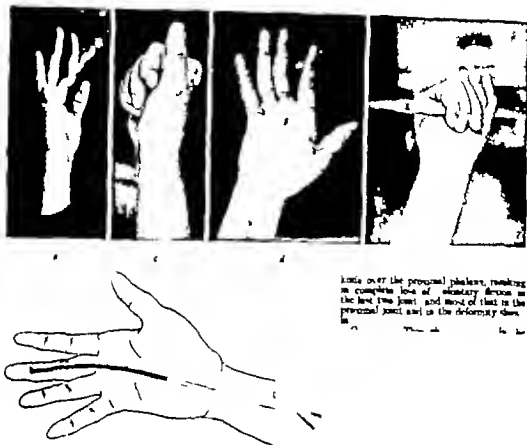


of paratenon fat taken from the forearm as sutured in place and the sublimis tendon of this finger cut off high in the forearm, dir through this paratenon sleeve, and used as free graft to bridge the deficiency in the profundus tendon. The little finger tendon of the palmaris

tendon may be unhindered by suture material from making a perfect union. If the union be made in a region such as the forearm where adhesions are not of such importance it is well to overlap the cut surfaces of the tendon ends, so as to attain earlier and stronger union for early exercise. The proper tension for uniting a tendon has been worked out by Dr. Leo Mayer as follows: When the origin and insertion of the muscle are approximated as near together as possible the tension of the tendon should be zero. There is an exception to this rule, however, in the case of a muscle which, owing to the severance of its tendon, has long been contracted. If the rule be followed in this case it will not be possible to extend the muscle sufficiently for full function and it will be necessary to make our tendon graft a little longer.

Removing and replacing tendons. It is difficult to remove a tendon neatly from a mass of adhesions and especially from beneath the annular ligament and from within a finger. These are the places where infection does the most damage, as here the firm structures prevent swelling and ischemia results, encouraging the ravages of the infection. For this purpose I use a stripper specially devised from a cork borer (see former paper) that with a sharp edge and twisting motion planes the tendon smoothly from its binding adhesions. Some of the strippers have flexible handles to fit the curve of a finger.

It is difficult also to place a tendon with its paratenon through a tunnel in the finger. This can be done with a flexible probe expanding flatly at its center so as to widen the tunnel and terminating posteriorly in a funnel



knots over the proximal phalanx, resulting in complete loss of secondary flexion in the first two joints and most of that in the proximal joint and is the deformity shown.

FIG. 4. Case Mrs. R. K. Four years previously the flexor tendons of the long finger had been severed with

chase. The suture must be hooked into the tendon for quite a distance and as little as possible of it exposed to the surface. The knots should be buried. If sewed well the tendon will break before the suturing will. Any crude handling of the tendon such as

binding adhesions will result in a poor result.

former paper. Short tendon grafts may be threaded longitudinally on the two strands of thread. The suture material should be soft, slender and strong. Pagenstecher 1 too harsh and will sometimes be extruded. Turner patent ligature silk Nos. 1 and 2 is satisfactory and often on exposing the union months later the suture line and silk cannot be seen. A good method is to let the suturing embrace only the half of the diameter of the tendon away from the mesotenon so that at least the other half of the diameter of the



Fig. 7. Case Mrs. J. M. Ayes previously she fell through a window severing most of the tendons and the median nerve in the right forearm. Two operations had been performed.

face through the matrix or in the pulp whether for infection or repair be eliminated entirely from the surgeon's activities, many fingers will be saved from being permanently damaged. Even in the palm the longitudinal incision leads to contraction. It is far better to make transverse incisions in the palm in the line of the creases or L-shaped ones than longitudinal. In the finger lateral incisions between the two lateral nerves and arteries should be made. They should be interrupted so as not to cut the pulleys. As the pulleys are located at the center of the segments of the finger the lateral incisions should be opposite the joints. Distally near the insertion of the tendon, the incision may be L-shaped, one arm running transversely across the volar surface of the finger. It is very important not to cut the nerves of the finger

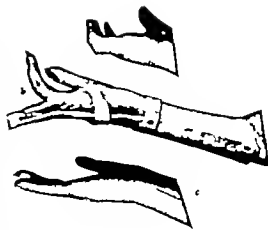


Fig. 8. Case Mrs. C. H. Shaw

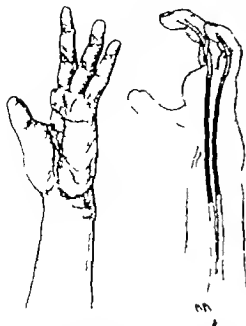


Fig. 6. Case C. H. C. Fourteen years previously a hair saw cut partially across his hand, entering the cleft between thumb and index finger and removing all of the flexor carpi ulnaris of his forearm. A subsequent infection resulted in dermatitis.



Fig. 7. Case C. H. C. Same patient.

1. 1, 2, 3, 4, and 5 taken 9 months later is shown again and function to allow him to return to work for the first time in 9 years.

a tendon repair or an infection or even after a general traumatism to the hand or a simple fracture of a phalanx, it is found that the joints can be passively but not voluntarily motion between the ten-

tendon stripper (mentioned above) and active motion be started at once and persisted in a great gain or even the normal range of motion will be attained. If the adhesions are light this may be accomplished through an incision in the forearm. The finger joints are forced

Often after a tendon repair it is necessary to do a second operation of freeing the tendon from adhesions. This is best deferred however for several months until the original postoperative induration has passed away otherwise a summation of postoperative induration might defeat our purpose.

Incisions. The selection of the proper incisions is very important. Many fingers are permanently crippled by the median longitudinal incision. This cuts the pulleys, roughens and causes adhesions on the friction not smooth and leads to mytrem of the finger whether on the dorsal or palmar sur-

contracture or mobilize a stiffened joint in a finger at the same time that a tendon is repaired as failure is sure to result. The added trauma will create adhesions to the tendon and also we will have the impossible double indication both to immobilize and move the finger. Unless the joints are freely movable it is useless to repair the tendon as it will not be able to move a stiff joint. The adhesions will then catch the tendon at rest and bind it in its bed.

If the joints of a finger are permanently stiffened it is better to amputate the finger than to try to reconstruct it. Such joints have adhesions between their articular surfaces that will not allow movement, even after all the tissues, including the capsule of the joint are cut away. If the stiffened joints are not permanently damaged they may be drawn into the position of flexion by slow mild continuous traction on the ends of the gloved fingers. They will then become more easily mobilized and the new tendon to be put in will have a chance to functionate

have time to grow enough to be relaxed in the new position, not merely stretched

such a finger is unfit for repair of the tendons, and amputation is to be preferred. For a tendon repair to be worth while, the bed through which the tendon is to be placed must be soft and succulent. It may first be advisable to excise the damaged firm tissue and replace it by means of a tubularized pedicle skin-graft before tendon repair is done. To avoid latent infection and to await the softening up of the tissues, at least 4 months from the time of infection should elapse before a repair is attempted. A freshly cut tendon may be repaired primarily if an excision of the damaged tissue is done but

if over 24 hours have elapsed since the injury infection will probably result if the tendon is operated on. One had better treat it conservatively and later do a secondary repair.

It is well to beware of an annular scar or the too close proximity of another scar as in such a case necrosis is prone to occur from the diminished nerve and blood supply.

There are certain people and not always old ones, whose joints and tissues have a tendency to stiffen if traumatized or immobilized and these make poor subjects for tendon repair. The presence of osteo-arthritis suggests this type. There are others who have not enough character to withstand the pain of moving their fingers after the tendon repair. With them an otherwise good result may be prevented. Before attempting a tendon repair one must weigh well the gain of function to be expected with the amount of inconvenience and trouble to the patient.

After treatment. The after-treatment is all important. It is best to avoid splinting the fingers, as too much immobilization allows adhesions to form. Instead the wrist can be strongly flexed for a flexor tendon and held

power of too much traction and still they can keep the tendon actively moving. Motion should be encouraged from the first, but too much or too vigorous early motion causes hematoma and the opening of incisions. Later a ball, a rounded match box, or a piece of rubber hose can be carried in the pocket and used for exercise in grasping. The restricting check rein should not be removed for 5 weeks when union will be firm. Later the galvanic current may be used to contract the muscles sharply thus snapping tiny adhesions. If the hand is soaked in hot water previous to exercising it helps considerably. Actual hard work and the lapse of several months finally complete the loosening-up process. Co-operation by the patient is essential and he must be willing to take some punishment in exchange for a good result.

It is well to give a guarded prognosis in these cases but it is usually possible to restore from 80 to 95 per cent of lost function

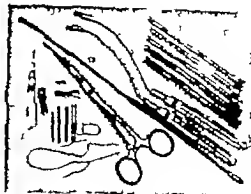


Fig. 9. Case R. W. (colored). (at left) Flexion contracture from paralytic form. A. Same, after closure. Hyperextension on splint, and skin graft by tubularized pedicle graft from side of chest.

either in the finger or in the palm, as trophic changes will result. On the extensor surface, crescent or L-shaped incisions are satisfactory. It is important to have the skin incision remote from the tendon graft and tendon suture, as otherwise adhesions and infection will be encouraged. If the pulleys have been destroyed by former ill-advised incisions, they may be reconstructed by fascial grafts. Otherwise the tendon will bow across the flexed finger and loss of function will result.

Flexion contracture of a finger. Flexion contracture of a finger is quite common, due

usually to a burn. It is treated by immobilizing the finger in a position of hyperextension with a web strap and buckle looped around each wire, the convexity of the finger is day by day gradually drawn forward between the wires until the finger is hyperextended. This position is maintained until the tissues of the volar surface of the finger have grown long enough to allow correction to be permanent.

Greater degrees of flexion contracture can be corrected by excising the contracting band of skin and subcutaneous tissue and after forcing the finger into overcorrection closing in the denuded area by a tubularized pedicle flap prepared 10 days previously. Wolfe grafts

may also be used, but they necessitate perfect immobilization. Thiersch grafts do not furnish enough subcutaneous loose tissue to make a bed for the later tendon repair. After straightening the finger hyperextension must be maintained for a month by splinting. If the contracture is too extreme, gangrene may result from sudden forced extension.

Indications and contra-indications. It is a mistake to attempt to mend a bone, correct a

grams of all kinds of fractures, four "oblique fractures of the posterior tibial margin with posterior dislocation of the foot." Meissner in 1903 reported a study of this condition based upon 19 cases. He had one case of isolated fracture of the posterior tibial margin i. e. without posterior dislocation of the foot. 8 cases of the posterior marginal fracture of the tibia and posterior dislocation of the foot, with fracture of both malleoli. 1 case of the posterior marginal fracture and posterior dislocation, with fracture of the internal malleolus. 5 cases of the same fracture and dislocation with fracture of the fibula, and 4 cases with separation of the epiphyses.

Posterior dislocation of the foot may occur without a posterior marginal fracture of the tibia but seems to be very rare. Auvray reported a case before the Paris Surgical Society during these discussions, in 1912 and exhibited the X rays of it. After examination of them by the members of the society there was manifested a difference of opinion as to whether they showed a posterior marginal fracture of the tibia or not. Quenu said that for one certain case and two disputable cases of posterior dislocation of the foot without a posterior marginal fracture. Thompson and



Fig. 1. Old injury of posterior dislocation of

astragali. A fracture of the internal malleolus and of the posterior inferior margin of the fibula are also seen.

improved results of the treatment based upon it. The results in the cases here reported and illustrated are offered as further proof of the ideas offered in the above mentioned paper. The fall is assumed to be the great cause of fractures and dislocations, but we cannot give direct proof of this because we cannot reproduce in the cadaver the ordinary fall of the living body nor the effect of the fall except in a few instances. In 1905¹ I reproduced fractures of the head of the radius repeatedly and a few Colles' fractures by the same mechanism as in the fall on the hand following von Bruns'. In my opinion, there are only two fractures—the broken radius

it was always or nearly always present.

What made these discussions by the French surgeons so warm and prolonged was that Quénu was attacking the long established view that the

ence in the literature conceived and applied my simple treatment and obtained good union and function in four cases before doing so.

For some years I have been interested in the mechanism of fractures and the cause of typical

the an p tu W the usual ponderous works and much cadaver

of the value of cadaver experimentation is in the

Colles' fracture is due to the fall on the hand and that the usual Pott's fracture is due to eversion or inversion of the foot. At first thought, it might prove a little disturbing if anyone should ask if these mechanisms have been demonstrated by experimentation on the cadaver. Most of us would know little and care less about it. In my

obvious that the posterior marginal fracture of the tibia and the posterior dislocation of the foot shown here were due to a force driving the foot upward and backward. A clear history of such

DEPARTMENT OF TECHNIQUE

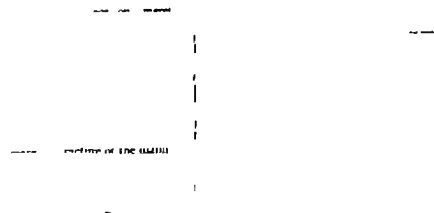
POSTERIOR DISLOCATION OF THE FOOT WITH POSTERIOR MARGINAL FRACTURE OF THE TIBIA AND USUALLY WITH A POTT'S FRACTURE OF THE FIBULA

By T. TURNER THOMAS, M.D. F.A.C.S. PHILADELPHIA

TWENTY FIVE years ago, as an interne I had a patient with a posterior dislocation of the ankle in which the X-rays showed a posterior marginal fracture of the tibia. The records are not now available but my memory is

Stimson says of this condition "I have never seen it in a fresh injury and do not know whether it could be recognized." I have assumed the presence of the posterior marginal fracture of the tibia whenever I found the posterior dislocation at the ankle joint, except in the first case seen in my interne days. In the second case it was assumed to be present but the X-ray was refused. In every other case the X-ray later showed this fracture to be present. In the third case because the accident happened in the evening after the X-ray laboratories had been closed, the fracture was reduced and a cast applied before the X-ray was taken.

It has long been held that there is a decided



Malgaigne, 1832 and Adams, 1836) Grayson in 1907 reported finding in 1500 recent cases.

Read before the Lachrymose (Local) Medical Society, Brooklyn, Pennsylvania, September 20, 1921.

6) in which there was no Pott's fracture the first attempt was completely successful. For the second trial in the others, the cast applied in the first, was so cut away as to leave the upper portion down to the tips of the malleoli in order to preserve the correction of the Pott's fracture and high enough anteriorly and posteriorly to permit the necessary dorsal flexion of the foot on the second trial which was sufficient in every case of pure dislocation-fracture. In the epiphyseal separation with dislocation-fracture (Fig. 2-5) while the patient was under ether for the second trial at correction of the posterior displacement, an X ray was taken and developed immediately after the first attempt at correction. This proving unsatisfactory without permitting recovery from the anæsthetic a second attempt and aid X

apparently rather irresponsible young man who requested that he be transferred to another hospital than the one in which I first found him. He was sent to another hospital but later refused to be admitted there. This was about 15 months ago and I was told recently by a neighbor that he had since been operated on twice by another surgeon and that he could now walk. Rowlands¹ illustrates two cases by X ray and one of them by photographs taken before and after operation. In this case before operation "the limb was almost

later was good, the patient being able to walk long distances without pain and move the ankle well.

CONCLUSIONS

1. The Pott's fracture is seen to involve the

Pott's fracture.

2. The

result from the lateral deviation of the foot. In Case 3 there was no Pott's fracture because the foot did not turn sideways.

It has not been considered worth while to furnish individual histories of the different cases except the facts given in connection with the first two. Of others it seems sufficient to say that they all fell and all got perfectly well, except the last who has had the cast removed and when last seen had not yet recovered normal motion in the ankle and the case illustrated in Figure 2-7 who refused treatment. He was an excitable and

the impairment of function must be serious. With reduction the function has been essentially normal in all of my reduced cases except in two

until bony union is assured.

Read May 1904 Dec. 1904



Fig. 1. The cases represented here by 1, 2, 3, 4, and 5, show in each instance, the lateral and anteroposterior views before and after the reduction of the displacements. 1 & 2 we have both these views after reduction only because none was taken before reduction. In 3 the patient refused to permit reduction and in 4 the anteroposterior view taken before and after reduction was lost.

a force was obtained only in connection with the case illustrated in Figure 2 & 6. We must assume it for the others.

The best method of correcting the displace-

ment notwithstanding the effort made to correct both displacement in the first trial, the posterior displacement, although very much improved, was not completely reduced in any. During the operation no correction on the foot was made

Pott's fracture of the tibia the general anesthesia has had to be given a second time because

U. M.
correc
Fig. 2

THE UTILIZATION OF THE PECTINEUS FASCIA IN CERTAIN FORMS OF INGUINAL HERNIA

BY WALTER D. WISC, M.D., F.A.C.S., BALTIMORE

WHILE in some noted clinics, the use of cord transplantation in the repair of hernia has been abandoned, we have felt more convinced each year that in the majority of cases it is a good procedure. We do not use it in children or in young adults with indirect hernia who have well-developed and well-

This is done with a figure-of-eight or double row of interrupted sutures and the edge of Poupart's ligament brought up and sutured to the external oblique with interrupted sutures as described in several recent articles on the subject. The cord is placed between the external oblique and the subcutaneous tissues. In this way of course

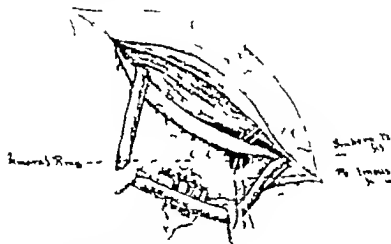


FIG. Showing a figure-of-eight suture beginning and ending by passing through the pectineus fascia.

arranged muscles with a thin-walled narrow sac. It is used in all direct hernia regardless of the size of the sac, in all recurrent hernia and practically all patients over 25 years of age suffering with the indirect variety. Formerly it was not done when using a local anesthetic but lately the cord has been transplanted in these cases also. After the adoption of the plan outlined our recurrences were fewer than with the

the inguinal canal is closed completely at its medial end. Usually this method of closure makes a most satisfactory repair. We have not attempted to trace our cases, but in the 3 years since done — —

recurrence after operations by other method and one of double recurrence after a Bassini operation for double direct hernia, considered inoperable but operated upon in each instance at the insistence of the patient. In this case there was a great dearth of structures as is likely to be seen and the patient was 40 years of age. One side has been operated upon by this method 22 months and the other 18 months.

As for following the lead of A. C. Harrison we begin to use the imbrication method of carrying the edge of the external oblique down to Poupart's ligament along with the internal oblique and conjoint tendon

A SELF-RETAINING EASILY REMOVABLE DRAINAGE TUBE

B. MAX BALLIN, M.D., F.A.C.S., DISTRICT MICROSCOPIC

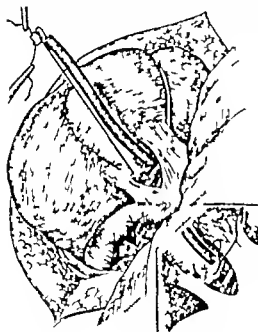
EVERY surgeon knows the difficulties encountered after certain operation in

generally adopted method is to fasten the tube in the depths of the wound by means of a loose catgut suture then either forcibly tear this suture when removing the tube or wait for absorption of

the catgut. The first procedure is painful and the second cannot always be accomplished at the time desired because catgut is not absorbed

quently does not perform its function for the reason that the end does not remain in its proper place.

We have overcome this difficulty (perhaps others have used the same simple procedure) in



the tube by a few sutures. In breast amputation we fasten the tube to the stump of the pectoralis muscles

drawn the thread being pulled from the tissues without causing any injury or pain.

We have found this tube very practical because of the painlessness of its removal. It can be used wherever retention of drainage tubes is their

the tube by a few sutures. In breast amputation we fasten the tube to the stump of the pectoralis muscles

altered except that it seemed to be decreasing in size. In 20 days, a complete fibrous cicatrix had

ly a cellular infiltration with the formation of tubercles. This infiltration is avascular so that the cells in the center of the enlarging tubercle lacking nutrition rapidly degenerate under the action of the tuberculous toxins giving rise to the characteristic caseation. If it were possible to revascularize this tissue a big step would undoubtedly be taken toward the cure of the lesion. Bier recognized this fact when he introduced his method of inducing hyperemia. I believe that the beneficial action of the cautery is due more to the revitalization of the tissues than to the destructive action of the heat.

In 1910 I removed with a cautery snare for diagnostic purposes, a portion of a suspicious tonsil from an arrested case of pulmonary tuberculosis. The portion of the tonsil removed showed extensive typical tonsillar tuberculosis. Five days later I removed another portion of this tonsil, including the scar made by the previous cauterization. In this scar there was already a well-developed fibrous tissue changing the histological picture so that now only a single tubercle was found after the examination of numerous sections and this small tubercle was being rapidly converted into fibrous tissue. This finding led to a series of experiments on guinea pigs. After experimenting with tubercle bacilli of various degrees of pathogenicity, I was finally able to produce localized cutaneous lesions of the abdomen. Some of these lesions I partially excised as controls, and others I cauterized

tuberculous area. To summarize: An eschar

through a previously avascular area. This brings nutrition to the freed connective-tissue elements enabling them to withstand the action of the tubercle toxin, and it is also possible that the epithelioid cells themselves, because of the added nutrition develop into fibroblasts. The object then, of our cauterization of a tuberculous

areol except by the disease itself. At the present time I believe that all the various clinical types of localized tuberculous lesions, be they infiltrative, ulcerative or of the tumor type if they are within reach will be more successfully combatted by the cautery than by any other form of treatment no matter in what part of the throat or larynx they occur.

TECHNIQUE

The object of the cauterization is, as has been stated, the production of an eschar rather than destruction of all the tuberculous tissue and this fact makes the procedure a comparatively minor affair. The application of the cautery may be done either by direct or indirect laryngoscopy. There are a number of laryngologists who prefer the direct method and some who even use sus-

retardation, while those cauterized invariably disappeared. By killing the pigs at known stages, a histological study was made of the healing process.

In 3 days after the cauterization, there developed a distinct zone of inflammatory reaction around the area of destruction. This reaction was manifest by the presence of newly formed blood vessels, congestion and fibroblasts. In 6 days, the zone of reaction was much more marked, and the blood vessels were larger and more numerous. Also there was a distinct deposit of fibrous tissue between the epithelioid cells of the tuberculous mass. At this time, the tuberculous process beyond the zone of reaction was apparently un-

to a white heat almost instantaneously. Also, the platinum point of the knife should be shorter than the usual pattern in order to prevent burning

with no sign at this date of any weakness in the inguinal regions. All the operations were done by the writer. While we feel that this is, to us,

not hold. In this class of cases, it is our custom to start the figure-of-eight suture in the pectineus

While it is remembered that the medial end of Poupart's ligament is re-enforced by Gimbernat's ligament and is, in most instances, strong enough to meet the demands of any hernia operation nevertheless it is in some patients weak, frayed or so thin that it does not seem equal to the responsibility placed upon it. Of course all structures in the repair of a hernia should come together without tension, but this is not always entirely feasible and in the recovery from the anæsthetic and during convalescence there are apt to be periods of strain in which an inferior quality of Poupart's ligament might

pectineus fascia and muscle. It does not change the usual relationship of the structures, but the inclusion of the pectineus fascia and muscle with Poupart's ligament gives a much greater sense of security for the one or two sutures thus placed. In addition to this, it at the same time closes the femoral canal as is done in the repair of a femoral hernia. If it is true that the repair of an inguinal hernia tends in a certain number of cases to the production of a femoral hernia, then these so-

THE USE OF THE ELECTRIC CAUTERY IN LARYNGEAL TUBERCULOSIS

By GEORGE B. WOOD, M.D., PHILADELPHIA

THERE are few morbid conditions that cause more distress and pain in the final agonies of life than does advanced laryngeal tuberculosis, and there is scarcely another condition in which the physician feels more hopeless not only in his efforts to prolong life but also in his endeavors to alleviate suffering. There was a time when almost every case of laryngeal tuberculosis, incipient or otherwise, held for the afflicted patient a future to which even his physician could look forward with only dread and misgiving. Of recent years, however, a gradually growing confidence has replaced the pessimism of yesterday, so that today the laryngologist is not necessarily touched by panic when an incipient case of tuberculous involvement of the larynx is first diagnosed. For this, he has t-

time, the application of the acid, formaline and other germicides has little effect upon the progress of the tuberculous disease, though their use is frequently indicated to combat secondary infection. The real curative measures belong to the domain of surgery. Bloody surgery of the tuberculous larynx, though frequently accompanied by very favorable results, has reached the end of its usefulness for the sole reason that the electric cautery will in almost

that peculiar sense of elation which he feels when, through his interference, suffering and death have been averted.

however overlap in their application. Palliative measures will at times, permit the swallowing of

tuberculosis, other than the use of the cautery, as the local lesion in the vast majority of cases, is associated with pulmonary disease. It is essential that appropriate general treatment be adopted for the control of the pulmonary condition and this general treatment is an important aid to the local therapy. In many of these cases, however, the cure of the laryngeal condition is so important that sometimes the general therapy has to be modified so that the patient may be in the hands of a competent specialist. Also as to local measures, we must recognize the importance of vocal rest, the application of various medicines for the control of secondary infections, and the relief of pain. Untreated laryngeal tuberculosis usually follows in its course the progress of the pulmonary condition although frequently it becomes the pre-

dominant condition was growing progressively worse. I am so enthusiastic about the use of the cautery in this disease that I believe that 90 per cent of inoperable cases can be cured and that the benefit obtainable is only limited by our ability to reach

a new method of treating laryngeal tuberculosis, nor in bringing this subject to your attention at this time am I offering any particular technique but I am simply making a plea for its more universal adoption, convinced as I am of its efficiency in treating this disease. A sanitarium for the treatment of tuberculosis unequipped

to handle these cases.

SQUAMOUS-CELL EPITHELIOMA OF THE LIP

ITS SURGICAL INDICATIONS

B. JOHN HUNT SHEPHARD, M.D., SAN JOSE, CALIFORNIA

In a recent review of the literature

venture the statement that a certain growth was highly malignant, basing his opinion upon the degree of cellular activity as manifested by the invasion of the adjacent musculature by the

squamous-cell epithelioma. While approximately 98 per cent of all squamous-cell epitheliomata do show pearl bodies, their presence is not essential; they result from the process of differentiation.

For a while it has been known that some lip cancers are fatal while others are not. Most surgeons have had the experience of telling a patient with lip cancer that his only hope for a

cure depends upon a radical surgical operation only later to be embarrassed by learning that his former patient had been cured by some paste plaster or other form of non-operative treatment.

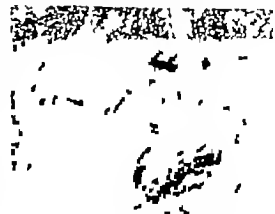


Fig. 1. Squamous-cell epithelioma of the lip, grade fully three-fourths of the tissue is differentiated. Leucocytic infiltration.

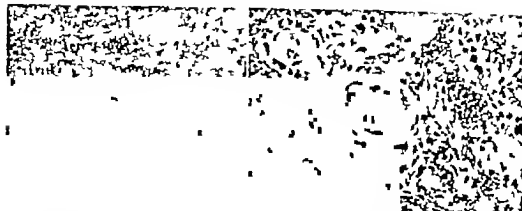


Fig. 2 (at left) Squamous-cell epithelioma of the lip, grade equal. Differentiated and undifferentiated tissue about equal.

Fig. 3 Squamous-cell epithelioma of the lip, grade 4. One-eyed cell. Differentiated and undifferentiated tissue about equal.

The indications for operation of lip cancer have in the past been based upon clinical judgment and individual experience. Surgeons have had no common ground upon which to compare their operative results. Some have advocated a complete dissection of the submental and sub-mandibular triangles in every case, others advising such dissection only in those cases presenting palpable glands in the triangles, others limiting their operative work to the immediate vicinity

of the tumor. It is useless to subject these unfortunate patients to a major operation.

On account of the nature of the original growth, if presenting an exposed ulcerating surface, more or less infection is present in a large percentage of the cases. Although this infection is usually mild, it frequently gives rise to inflammatory enlargement of the lymph glands draining the involved area. By palpatory examination it is often impossible to differentiate between this inflammatory enlargement and glandular metastases. For this reason it is often necessary to wait a glandular dissection and await the pathologist's report before deciding how extensive an operation to perform.

Since we are now able to grade these growths according to their degree of malignancy, it is possible to formulate certain rules for our guidance of their treatment. In the future we will be able to compare results from an intelligent, definite viewpoint and useless radical operations should be few and fatal conservative treatment rare.

Grade 1 (comprising 15.82 per cent). Complete removal of the cancerous area. Depending upon the size and location of the growth this may be best accomplished with the least disfigurement by the X-ray or radium in one case, a V excision in another, or a plastic operation in a third case.

Grade 2 and Grade 3 (comprising 83.05 per cent).
A. When no glandular metastases is present. Complete removal of the cancerous area, together with a complete removal of all gland-bearing tissue from the sub-mandibular and submental triangles of both sides of the neck.

B. When glandular metastases is present.
1. When the cervical glands are not involved

Broders found that the growths comprising his

per cent in grade three and 100 per cent in grade four. These results were irrespective of the type or extent of treatment. He also found that all patients showing metastases in the cervical lymph nodes or in any two or more groups of lymph nodes, at the time of operation, had died and that of the patients reported dead who had shown metastases over 90 per cent had died from epithelioma.

We note that those cancers of the lip which fall in grade one and which comprised 15.82 per cent

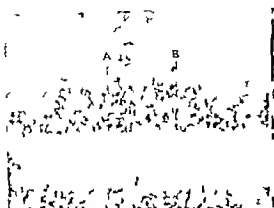


Fig. 4 (at left) Squamous-cell epithelioma of the lip, grade 4. Mitotic figure \times One-eyed cells. No differentiation present.

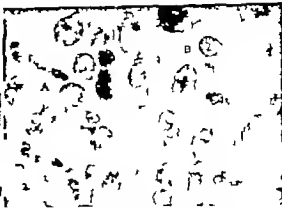


Fig. 5 Squamous-cell epithelioma of the lip, grade 4. Mitotic figure \times one-eyed cell. High power.

and only one group of the submental and submandibular glands is involved. Complete removal of the cancerous area together with the removal of all gland-bearing tissue from both submental and submandibular triangles and the removal of the upper superficial and deep cervical glands of that side of the neck corresponding to the metastatic growth.

2. When two or more groups of glands or when the cervical glands are involved. Complete removal of the cancerous area together with a complete block dissection of that side of the neck corresponding to the involved area, sacrificing the sternomastoid and omohyoid muscles and the spinal accessory nerve and a dissection of the submental and submandibular triangles of the opposite side.

Although such radical surgery will often prolong life a five year cure is not to be expected in these cases.

Grade 4 (comprising 1.11 per cent) Palliative treatment. The classification of squamous-cell epithelioma into the four groups representing the various grades or degrees of malignancy is accom-

panied by a squamous-cell epithelioma shows three-

differentiated and only an occasional mitotic figure and few one-eyed cells are present it is classed as Grade 2.

When only one fourth of the tissue is differentiated and mitotic figures are seen in every second or third field and two or more one-eyed cells are present in practically every field it is classed as Grade 3.

When no differentiation is present and mitotic figures and one-eyed cells are freely distributed throughout the specimen, it is classed as Grade 4.

While it is easy to distinguish a Grade 1 from a Grade 4, it requires considerable experience to classify properly many of the growths which are on the border line between any two grades. However it is surprising how seldom disagreement occurs between two persons familiar with the work and the frequency of squamous-cell epithelioma affords ample opportunity for any pathologist to familiarize himself with it.

CONCLUSIONS

with large deep staining nucleoli, is to be taken into consideration. On account of the character

quite probable that other forms of cancer possess definite cellular characteristics corresponding to their degree of malignancy such characteristics have not been established.

REFERENCES

1. It is practical to grade squamous-cell epithelioma according to their degree of malignancy.
2. Rational treatment of squamous-cell epithelioma depends upon a proper grading as to their degree of malignancy.

CHOLECYSTOSTOMY OR CHOLECYSTECTOMY—WHICH?

By JAMES F. PORTER, M.D. F.A.C.S. LOUIS WYOMING

IS
per
of 1
troublesome appendage to be treated by the surgeon as is the vermiform appendix? Upon the answer to this question should depend in large measure the surgeon's treatment of the gall bladder. In a former paper (1) the writer presented evidence which seemed to establish the fact that the gall bladder in man was an important though not vital organ.

Rous and McFaster (2) in experiments on animals proved that the "concentrating activity" of the gall bladder was a function indicating that it was an organ of special importance to the organism.

Robson (3) recently emphasizes the importance of the reservoir action of the gall bladder and says that "sufficient time has not yet elapsed to show whether the liver is injuriously affected by this pressure (after cholecystectomy) and absorption. Whether cuttings of the liver and

produced by ligation of the common duct.

Flexner's experiments prove that when pure bile is injected into the pancreatic ducts it produces pancreatitis, but when the bile is mixed

It is contended by some that the value of a functioning gall bladder to the economy is not great enough to warrant the leaving of these even possibly dangerous. Says one: "The recurrence of gastric symptoms after cholecystectomy usually means that the gall bladder should have been removed." My own opinion and experience is not in accord with this. On the contrary my experience has been that continuation of symptoms after cholecystectomy means in the majority of instances either (a) overlooked or new-formed stones, (b) cholangitis, (c) ulcer of the stomach or duodenum, or (d) pancreatitis. Now and again one finds in the literature a case wherein symptoms attributed to gall-bladder disease were found to be the result of a diseased appendix; however the more frequent error consists in accusing the appendix when the gall bladder is the real culprit. The deductions made by many of those who champion the cause of cholecystectomy as against cholecystostomy are frequently fallacious. One finds many cases reported purporting to prove that cholecystectomy frequently relieves cases wherein cholecystostomy fails. In the majority of these reports a careful analysis of the individual cases will show that when the cholecystectomy was done a stone or stones were also removed. Jacobson (7) in his paper on the gall-bladder work done at the Peter Bent Brigham reports five secondary operations for overlooked stones. In four of these cases the primary operation was a cholecystectomy. In Jacobson's series (397) of cases removed in 1910.

cholecystomized patients suffering from gastric symptoms, in 83.3 per cent of whom hydrochloric acid deficiency was found, and his statement that a similar phenomenon followed cholecystectomy in dogs. He suggests that the acid produced in the stomach may be an index of the function of the gall bladder and advises against the removal of the gall bladder in those cases in which, from the acid content of the stomach, it seems capable of functioning.

belief in its uselessness. In a clinic manned by men believing that the gall bladder is an important organ, the bellies of these patients would have been closed perhaps after providing for

the force of Eastman's statement (8) that it is unwise to take out the gall bladder simply because it is an attractive operative procedure. If we had to deal with an infection of the gall bladder alone, this would be a very easy question to solve, but I have never seen a badly infected gall bladder that was not associated with infection of the ducts, or with infection of the pancreas. I believe we shall decide more and more to utilize

removal of the gall bladder is an important factor in the cure of cholangitis and its results, and emphasizes the value of drainage. I am firmly convinced in my own mind that the cures which have followed cholecystectomy in cases wherein cholecystostomy failed, except those wherein additional stones were found, are to be explained many times on the basis of the drainage consequent upon the cholecystectomy with its result

contractile force in the biliary system has been cut out, as held by Archibald (10). Another argument advanced in favor of removal of the gall bladder is that a diseased gall bladder after drainage probably does not regain its power to function normally. This argument is refuted by the fact that numerous gall bladders have been

I never knew an acute cholecystitis that failed of a cure from cholecystostomy unless a stone had been overlooked, save one. This exceptional case was one of acute cholecystitis and cholangitis with jaundice. The drainage was not kept up as

found at autopsy the common and hepatic ducts were found to contain pus and masses of greenish impregnated mucus.

W. J. Mayo (11) says: A seriously infected gall bladder cannot exist without evidence of infection in the glands which drain it, and in such cases as fail to show the ordinary signs

of infection the mucosa will if examined show unmistakable evidence of chronic infection.

Now and again a typical gall-bladder stone will be the only physical finding lending color to the clinical picture of chronic cholecystitis. Yet again even this positive evidence may be absent and we have left only the appearance of the mucosa and the divided walls of the gall bladder to depend upon. Supposing all these signs fail, shall we remove a gall bladder on the clinical symptoms alone? It is not denied that a gall bladder may be infected to a degree requiring its removal and yet there be no signs of such infection that can be detected by the unaided senses, but I have never had such a case demonstrated to me. Until I have I shall continue to drain such gall bladders rather than remove them.

SUMMARY

Routine removal of the gall bladder is based upon the following assumptions:

1. That the gall bladder is an unimportant organ and that its removal is followed by no untoward results.

2. That if it is not removed

or

it

bladder was not removed. The facts are:

1. All evidence at hand supports the contention that the gall bladder is an important organ and evidence is not yet at hand to warrant the conclusion that its removal leads to no serious consequences.

2. Cholelithic disease including gall stones frequently if not usually originates in the liver. Routine cholecystectomy frequently fails to cure and leads to the removal of healthy gall bladders in over 4 per cent of cases.

CONCLUSION

The gall bladder should not be removed unless it has become useless or dangerous by disease.

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EDITORIALS

SURGERY, GYNECOLOGY AND OBSTETRICS

FRA KLEN H. MARTIN, M.D.
ALLAN B. KANAVEL, M.D.

Managing Editor
Associate Editor

JULY 1922

ON THE USE OF TRANSDERMIC AP- PLIANCES IN THE TREATMENT OF FRACTURES

WHETHER right or wrong when an idea has once gained credence among surgeons it has a tendency to stick. This conservatism is good in so far as it prevents the too easy acceptance of half-baked theories; but it is unfortunate when it inhibits the introduction of new and valuable procedures, as it sometimes does.

For instance our notions regarding the vulnerability of the peritoneum kept us for a long time out of the abdominal cavity and our conviction that it was dangerous to irrigate the surface of the pleura prevented us from employing antiseptic solutions in the treatment of empyema.

Similarly the fear of infection in fractures of the long bones has caused us to shy at the adoption of various useful methods of fixation, traction, and extension which have been presented from time to time such as the external bone-clamp, the wire-and-nail traction of Steinmann, the ice-tongs of Ram-ohoff and the fixation of fragments by means of nails and screws inserted through the skin.

But in the face of this deeply rooted prejudice an extensive experience in the Great War added to that of civil practice, as reported by many observers, has demonstrated that when properly carried out the likelihood of infection in these procedures is slight and our fears have little justification.

In fact from the evidence now at hand it seems fair to assume that if the skin is well prepared there may be introduced through it into the bone and left there almost indefinitely screws, nails, wires, or ice-tongs, as indicated with almost no danger of infection, provided these things are clean and that they fit the openings snugly without undue pressure or traction upon the surrounding integument, safety being doubly assured by means of a dry dressing and the occasional application of weak tincture of iodine.

When this principle is widely recognized as it should be, it will open the way for a more simple and effective treatment of certain fractures in which the results leave much to be desired at the present time. Few surgeons will venture to deny, for instance, that traction by means of tongs or wires applied directly to the bone may be more effective and practicable than that obtained by strips of adhesive plaster attached to the skin and in addition to conserving motion of the adjacent joints, the method may be employed where the condition of the skin prevents the use of splints or adhesive. Likewise the external bone clamp the principles of which have been so well described by Parkhill, offers many advantages in the way of fixation and extension, in fractures of the more superficial

long bones, if only we were not afraid to use it. For instance,—the ease of application and removal (it sometimes may be inserted through mere punctures in the skin) the safety of placing the screws far from the line of fracture the fact that the instrument is mostly external and not internal like a Lane plate and the firmness with which the fragments are held, because of the stability of the clamp and the size of the removable bone screws.

From experience with the external bone clamp and traction by means of wires, nails, and tongs, the question of infection resolves itself into this. If proper cleanliness is observed the danger is slight and distinctly less than in the use of an internal plate because a minimum of manipulation is required and the line of fracture is not encroached upon by a foreign body. But if the operation is not clean, suppuration will supervene, as in any other surgical procedure, although the results are apt to be less disastrous because of drainage afforded by the openings through the skin. In addition the screws can be removed at any time, thus eliminating all disturbing material. Unfortunately for a correct understanding of the situation, it often is more agreeable to attribute a septic disaster to something inserted through the skin than to an error in technique, although the comparative frequency of infections in connection with other operative procedures, such as the use of the Lane plate, should assist us in avoiding such misconceptions.

The notion that a late infection is apt to creep into the bone along screws, nails, or wires is largely theoretical as has been demonstrated regarding the external clamp and the Steinmann traction and if such an infection should occur it is almost invariably trivial, being localized by the formation of an enveloping granulating channel.

In conclusion whatever may be one's opinion regarding the usefulness of appliances inserted through the skin into broken bones, one should at least, in the light of existing evidence, recognize their practicability and safety.

LEONARD FREEMAN

ILLUSTRATED CASE REPORTS AS AN AID IN SURGICAL TEACHING

ILLUSTRATED case reports as an aid in surgical teaching were presented at a recent meeting at which there were representatives of a number of teaching institutions. Comments led to the belief that the method is not widely employed and that its value is not generally appreciated yet a trial of 5 years has proved it to be of much practical value and worthy of the consideration of clinical teachers.

When a clinical demonstration on a given subject is planned it is usually well nigh impossible to secure cases which illustrate the lessons that are to be discussed and it is often impossible even to secure desirable cases which demonstrate the ultimate results of treatment. The difficulty is especially great if the same cases are requested to return serially for demonstration to successive sections of students or even once a year for successive classes. As a result, students see only those cases which are momentarily accessible, and these are for the most part the limited number which are in the hospital. Consequently students do not profit by the material which has passed through the hospital in the past. Such material always presents cases which could be employed advantageously for teaching were the records in proper form.

The deficiency of illustrative cases can be largely corrected by working up and filing type cases and unusual cases as they pass through the hospital, bearing in mind that

the hospital records are usually inappropriate and deficient for this purpose. Each member of the staff must be alive to the possible importance for teaching purposes of cases under his care. With this in mind the proper selection of cases for this purpose is readily made. There is prepared a careful summary of the history and physical examination of cases, ante-operative photographs and X-ray prints. After operation photographs of the gross specimen removed and photomicrographs of typical areas are incorporated with the record. The postoperative course is summarized. Photographs after operation are included as well as the ultimate results as determined by the follow-up examinations. In this way a complete record of the case is available for demonstration to students. Duplicate cases need not be accumulated but type cases should be replaced as more illustrative ones are secured. With such material one can demonstrate in a convincing manner the full course of individual cases or groups of cases. If in the course of a clinic, a postoperative case is demonstrated one can often utilize to

advantage the ante-operative records and photographs of similar cases.

The method lends itself best to lesions or diseases where some abnormality can be registered in photograph or X-ray plate, as, superficial tumors, skin lesions, exophthalmic goiter, osteomyelitis, myositis ossificans, Paget's disease and other deformities. But the field is far more extensive than appears at first sight if pathological material is included. Of course photographs are not as perfect records as colored illustrations or models, but are fairly good substitutes. The case records are grouped under subjects. These may be arranged in albums with removable leaves an album being devoted to each subject, thus enabling an instructor to secure very quickly material to illustrate a clinical demonstration.

In a few years there is accumulated complete records of groups of cases and unusual cases. The method requires some work and foresight but the results will amply repay the effort.

EDWARD H. POOL.



MASTER SURGEONS OF AMERICA

FOREWORD

American surgery is cosmopolitan. Students from the United States have pursued their studies in all the great hospitals and universities of the world each bringing home something of value which has been promptly introduced into American practice. The zeal and enthusiasm of the American student both at home and abroad has led to profitable scientific research and medical and surgical investigations, the value of which has been recognized internationally. Science has no country but scientific men are more or less influenced by the conditions in their own countries, and each country has its heroic dead whose life work contributed to scientific advance.

Sir Berkeley Moynihan has pointed out the value to the medical student of biographies of British surgeons that are appearing in the *British Journal of Surgery* and suggests that the biographies of great American surgeons of the past be written that their lives may be familiar to all and their deeds an inspiration to surgeons of this generation. The Board of Editors of the American College of Surgeons has acted on this suggestion and will publish in each issue of SURGERY GYNECOLOGY AND OBSTETRICS a biography with a portrait of an American surgeon who, before passing beyond, has done his work well.

WILLIAM J. MAYO.

SAMUEL DAVID CROSS

SAMUEL DAVID GROSS the elder Gross, as we all called him in order to distinguish him from his brilliant son and successor Samuel W. Gross, my old master whom I loved and admired with all the enthusiasm of boyhood more than 30 years ago was born in Easton, Pennsylvania, in 1805.

His great grandparents came from the Lower or Rhenish Palatinate in one of the emigrations of the Seventeenth Century from that portion of Germany which before its devastating wars had been a veritable garden spot. The soldiers of Louis XIV had interpreted literally the order of the Sun King to Louvois to burn up the country. They killed three-fourths of the people and destroyed

four fifths of the property. In the Palatinate, Wallenstein and Gustavus Adolphus, Tilly and Spinola Condé and Turenne performed some of their most sanguinary actions. They left the Palatinate a gory wilderness with the blackened ruins of homesteads, buildings and churches and the land harried by great flocks of ravaging wolves.

In the veins of Gross ran the blood of the calm, scholarly patriotic, broad-minded deep-thinking, home loving and philanthropic Palatines of those men who abandoned home and country for the rights of free speech of liberty and of conscience.

Gross was brought up on a farm. He loved the country all his life and he knew and appreciated its magic. Nature was to him an endless pleasure. Birds, animals, the woods and especially flowers were to him a source of the utmost delight. He loved the sunrise with its glory of color and the sunset with its splendor of flame. He loved the blue depths of the heavens, the sea, the majesty of the storm, the starlight and the stream.

He knew familiarly the flora of this entire region of Pennsylvania. He always kept flowers in his office and about his house and he insisted on seeing them in hospital wards. Once in a hospital I saw him tenderly lift a flower sadly comment upon how soon it would fade, saying "It has but one Spring and we mortals go almost as quickly for we have but a few Springs." He had within him something of the Wordsworth feeling. It is my faith that every flower enjoys the air it breathes."

He was educated in the common schools and started to study medicine under Doctor Swift of Easton. After he had begun his study in Doctor Swift's office he made up his mind that he had not sufficient education for the proper study of his profession and he went back to school finishing in the famous Academy at Lawrenceville New Jersey. He then renewed the study of medicine, entering the Jefferson Medical College of Philadelphia, and being an office student of the celebrated Dr. George McClellan.

On his graduation he started practice in Philadelphia and eked out a livelihood by hack literary work and translations. He spoke German and he acquired a knowledge of French in the course of a few months in order to translate Alphonse Tavernier's *Elements of Operative Surgery* in 1820. He translated the *Manual of General Anatomy* by Bayle and Hollard in 1828 and Jules Hatin's *Obstetrics* in the same year. In 1829 he translated Johann Valentin von Hildenbrand's *Treatise on the Nature Cause and Treatment of Contagious Typhus*. Tavernier's was the first treatise on operative surgery published in America and attained great success.

In 1830 two and a half years after his graduation, he wrote a work on *Diseases and Injuries of the Bones and Joints* and although the book became popular the liberal publishers never paid him a cent. Want of practice in

Philadelphia obliged him to move back to Easton. After remaining there for a time he went to Cincinnati and from there to Louisville where his fame was made.

In 1839 he published his great treatise on *Pathological Anatomy* the first in the English language. He received not a single cent for the first edition. The work was a great success and made him broadly known in this country and in Europe. The book was a popular textbook for more than a quarter of a century.

In 1851 he published a treatise on *Diseases of the Urinary Organs*. Up to this time there had been no satisfactory treatise in the English language the only two existing being Brodie's *Lectures on the Diseases of the Urinary Organs* and William Coulson *On Diseases of the Bladder and Prostatic Gland* both published in 1842. This book, edited by the younger Gross, was still a popular textbook at the end of the 80's in the last century.

In 1854 he published his noted treatise on *Foreign Bodies in the Air Passages*. This was the very first attempt that had been made to present the subject in systematized form.

In 1859 he issued the first edition of his magnificent textbook on surgery the greatest of his day the first from America and probably the greatest ever written by one man. Recall the comprehensive nature of the title: *A System of Surgery Pathological Diagnostic Therapeutic and Operative*. The sixth edition was issued in 1882.

In the beginning of the Civil War he wrote a *Manual of Military Surgery*. In 1861 he edited the *Lives of Eminent American Physicians and Surgeons of the Nineteenth Century* writing several of the biographies himself. At times he edited medical journals. He contributed a multitude of articles to medical journals and had made some original researches of the first importance especially those upon gunshot wounds of the intestines.

He had been a teacher in Cincinnati in Louisville, in New York City before he came to his real home as a professor of surgery in the Jefferson Medical College. He was one of the greatest of surgeons and teachers. He founded the American Surgical Association. He was long the most influential member of the American Medical Association. He presided over the International Congress of Surgeons in 1876. He received high public honors in Germany and was given the D. C. L. of Oxford the LL. D. of Cambridge the LL. D. of Edinburgh and when actually on his deathbed the LL. D. of the University of Pennsylvania.

His intellect was of the most comprehensive and luminous sort. He was a real surgical philosopher. Probably no greater mind was ever devoted to the science and art of surgery. He was a great man a good man and a gentleman a master teacher and one who commanded not only the respect but the affection of the entire profession.

His old friend Doctor Vandell of Louisville, wrote an epitaph which contains a just estimate of him. In this Vandell states that Gross's life was one unbroken process of laborious years "that he filled chairs in four medical colleges in the Union and added lustre to them all." That "he recast surgical science, as taught in North America, formulated anew its principles, enlarged its domain added to its art and imparted fresh impetus to its study. Among the many books he composed is "*A System of Surgery* which is read in different tongues, wherever the Healing Art is practiced." "With a great intellect, carefully trained and balanced he aimed with undivided zeal at the noble end of *lessening human suffering and lengthening human life* and so rose to the highest position yet attained in Science by any of his countrymen."

The writer of this brief memoir beheld the mighty leader a great many times, heard him lecture frequently and watched him operate and in him always saw the embodiment of surgical learning, dignity and distinction, and felt that fifty years of American surgery were speaking through his lips

J CHALMERS DaCOSTA.

TRANSACTIONS OF SOCIETIES

CHICAGO GYNECOLOGICAL SOCIETY

REGULAR MEETING HELD DECEMBER 16 1931 DR. W. C. DANFORTH PRESIDING

THE INFLUENCE OF OVARIAN SECRETION ON HEMORRHAGIC TENDENCY

DR. ARTHUR H. COXIN I very recently operated upon a young woman of about 30 or possibly a little older who had two large chocolate cysts of the ovary.

for over 7 years. Every time the cutaneous surfaces were bruised even so slightly she developed a hemorrhagic area, at times as large as a cancer over various parts of the body surface.

There arises the question as to whether the disturbed secretion of the ovary is an essential factor in the development of the hemorrhagic tendency. I suppose some of you have seen similar cases, and I wish to ask whether other members have encountered similar dyscrasias through disturbances of the ovaries. The giving of a hypo-

thymine occurred on removing the ovaries. The coagulation time was 7 minutes 30 seconds before operation and 7 minutes 40 seconds a few days ago.

She had had feelings and symptoms of the menopause and I was wondering whether it was the ovarian cysts that disturbed menstruation.

THE X-RAY IN PREGNANCY X-RAY EXAMINATION OF TEETH DURING PREGNANCY

DR. CARL HENRY DAVIS In view of the paper on the use of X-ray in pregnancy which is to be discussed tonight, I wish to show films of a twin pregnancy and a number of mouth films which show the importance of having all dead teeth X-rayed.

In the past 2 years it has been my unusual experience to have delivered six women of twins and one of triplets. In two instances it was impossible to determine the relative positions of the babies on account of excessive fluid and X-ray plates were secured. In the first case we were able by comparison of different films to demonstrate the babies' heads and determine the relative positions

This film of the second case was made with the Potter Bucky diaphragm which makes it possible to get much clearer pictures in this type of X-ray work. It shows both babies clearly.

Since Talbot's paper on focal infections in the etiology of toxemia I have been much more careful than formerly to have the teeth examined frequently during pregnancy. But dentists frequently maintain that there is no need to X-ray dead teeth and tell the patient that the mouth is in good condition. Within a year six patients have developed a more or less severe toxemia which I

It is my belief that the physician should require X-ray examination of all dead teeth and have any showing definite infection removed as early as possible in pregnancy.

ADENOMA OF THE UTERUS REMOVAL OF FOREIGN BODY FROM THE BLADDER

DR. W. C. DANFORTH Most of you have read the paper by Dr. Sampson on Adenoma of the Uterus. In this woman a mass existed which was definitely palpable in the cul-de-sac with diminished mobility and quite tender. Operation disclosed hemorrhagic cysts of the ovaries, the larger one

urethra might be passed a long narrow Kelley vesical forceps. I had no occasion to make use of this but in a woman catheter in scope and many times it was possible with very little

difficulty to grasp the catheter and, after removing the cystoscope to draw out the piece of catheter. It seems to be a rather valuable bit of technique.

THE TEST OF LABOR

Dr. GEORGE LEE presented a paper entitled "The Test of Labor" (See p. 63).

DISCUSSION

Dr. RICHARD W. HOLMES: It is refreshing to have Dr. Lee present a summary of his obstetrical work, because of late years we have heard much of operations on the pregnant, and little of pure obstetrical care in labor.

perhaps there may be an instrumental delivery but it does not necessarily follow. The molding of the head and the resistance of the soft parts play an important part. Take for example a vertex of 9 centimeters, or as some would have it 8 or 8.5 centimeters as the index between the relatively and

conserved in this type of case had we promptly introduced a Voorhees bag to dilate the cervix.

shows a good deal more abnormality than is usual.

up far better than this would show.

Dr. W. GEORGE LEE (closing the discussion): Dr. Holmes I think misunderstood me in referring to bony obstruction. My point was that where the

In answer to Dr. Bacon's question concerning

tential possibilities may be fixed unless she has had a real test of labor. I examined a woman recently who had a conjugata vera of 6 centimeters, and she stated she had given birth in a short labor to a baby weighing 6 pounds (Swedish). I would have

land with

In the matter of posterior position I think Dr. Bacon rather misunderstood me. I did not realize that as a factor for interference but merely that as a complicating factor this was present in an unusual number of cases.

has shown by fetal extraction. How is

place. The important thing is on b forceps let I in bearing will take ment of place. The important thing is on b forceps let I in bearing will take ment of place. The important thing is on b forceps let I in bearing will take ment of place.

has shown by fetal extraction. How is

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ROENTGENOGRAPHY IN OBSTETRICS

Dr. D. A. HINVER presented an inaugural thesis entitled "Radiography in Obstetrics" (See p. 67).

DISCUSSION

Dr. JOSEPH B. DELLE: This work has been done under my eye for the last years, and I feel that we are achieving some real results. I formerly looked

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| 1-2 | Read Case Reports and Histopathology (11-12) | Gynecological Operations on the Cadaver | Read Case Reports and Histopathology (11-12) | Gynecological Operations on the Cadaver | Gynecological Pathology and Bacteriology (11-12) | Gynecological Pathology and Bacteriology |
| 2-3 | Clinical Gynecology | Clinical Gynecology | Clinical Gynecology | Clinical Gynecology | Clinical Gynecology | |
| 3-4 | | Clinical Gynecology | | Clinical Gynecology | Clinical Gynecology | |
| 4-5 | Discussion of the Record | Endocrinology 4-5 | Endocrinology 4-5 | Orthopedic Surgery relating to Gyn. every other week | Gynecological Operations on the Cadaver 4-5 | Clinical Gynecology |

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upon the measurement of the pelvis as an almost impractical thing, but it seems to me now we have a scientific method of doing it. With the modern treatment of contracted pelvis we do not need these

pelvic contraction is concerned. To give the woman the test of labor is merely a subjective process. I do not want such a test that proves her absolute

determine because the fetus when it was expelled about 10 days after the picture was taken, was macerated and putrid, was expelled during the night, and was not saved for measurement. The fundus on examination was in anteversion and filled the whole true pelvis, and the os was open to the extent of the finger tip. This patient, who had

the fetus probably developed to 4½ months. We made daily examinations to determine whether life was audible through the stethoscope but were unable to get either heart tones or other evidence of life. I think this case is decidedly younger than

So far as the use of the X-ray on the fetus is concerned, I think there is no danger. The demonstration that it is possible to measure the pelvis and also the baby is the most important thing in the paper and it puts the real measurements of the pelvis more firmly on a scientific basis than ever before.

As Dr. Horner stated, there is a requirement in some states that there be physical examination prior to marriage and I believe it would be a very good thing for women to know if they are anatomically fit to have children and this method should be helpful there.

DR. EDWARD L. CONNELL: Dr. Horner failed to mention the diagnosis of ectopic pregnancy by means of X-ray as demonstrated by me in a case where we employed pneumoperitoneum on a rather obscure mass in one of the tubes. The patient had gone by for a period of about 6 weeks. The only symptom was complaint of pain. We did a

thing that will be accepted as essential. This method is not new.

was taken. From the history of amenorrhea and the conditions revealed in this plate a diagnosis of extra-uterine pregnancy was made. Operation

para II, age 19, presented herself at the prenatal clinic having had

and aware that one can tell accurately regarding the age of a fetus but that we only receive relative information from the size of the bones and their density even when these factors are determinable.

DR. D. A. HORNER: My case is

may be mistaken in this and ask for further elucidation.

Dr. D. A. HORMER: If you will recall, the unknown line is purposely put at an angle. It is

fore every picture we take can be graded a stand-

omification details to obtain the age of the foetus. Any textbook of obstetrics gives measurements which can be applied here. We judged that this was 3 months by comparing it with the film size of our 6 months foetus.

Dr. N. SPROAT HLEAVEL: I am not a radiologist

sented a very interesting study, but I wonder what real clinical value his mathematical-geometrical deductions have. Of what value is the 70/100 unless you likewise may have the same precise mathematical figures for the whole pelvis from inlet to outlet, both anteroposterior as well as transverse. Further we must demand the same mathematical determination of the foetal head in all obstetric

practical suggestion for the bedside I fear it is not practicable. After all, the acumen of the trained obstetrician aided by an intelligent palpation offers

there. The resistance of other normal structures is negligible.

CORRESPONDENCE

THE BIOGRAPHY OF EPHRAIM McDOWELL

world and his work was therefore not written entirely for America and the present period.

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twilight of the day that McDowell's first over-
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dence. I have dealt with these at length in the biography.

My chief aim in writing the biography of Ephraim McDowell was to arouse the interest of the medical profession and of the public in this benefactor to untold coming generations, so that he might receive honors commensurate with the importance of his labors.

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THORACOSCOPY

To the Editor: In a paper on thoracoscopy by Dr.

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at 5 days afterward and, in my experience, some even earlier. Contrasted with the condition of a laparotomized patient with complete exploration of the abdominal cavity the picture is most convincing. Also, at such an operation specimens may be removed with the minimum danger and a more perfect understanding of all the patho-

logical conditions present can be had than in any other way

I agree with Dr. Jacobaeus that the thoracoscope may have its uses, especially the one for which I understand it was originally devised, namely to divide adhesions in tuberculous cases preparatory to lung collapsing pneumothorax, but thoracoscopy has shown in the doctor's 50 patients 10 cases, or

20 per cent. in which there were complications which must be considered serious, so the procedure can hardly be considered in the light of a minor

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INGUINAL HERNIOTOMY UNDER REGIONAL ANÆSTHESIA

A CORRECTION

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ton, June 4, 5, 6, 1927 New Bedford, Massachusetts

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THE SURGICAL TREATMENT OF NON-MALIGNANT
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Van Blarcom, R.N. New York The Macmillan Company
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mench 2nd ed. Berlin and Vienna Urban and Schwar-
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PLANS FOR THE BOSTON MEETING

UNDER the guidance of a representative committee of Boston surgeons the plans for the twelfth annual session of the Clinical Congress of the American College of Surgeons, to be held in Boston, October 23-27 1922 are well under way. In general the plans

completely represent the clinical activities of that area.

will be submitted and discussed by Fellows of the College, hospital superintendents, trustees, nurses, and others interested in hospital problems.

At the Presidential Meeting to be held in Symphony Hall on Monday evening, the President Elect Dr. Harvey Cushing, will be inaugurated and deliver the annual address. On the same evening Professor Raffaele Bastianelli of Rome, Italy, will deliver the John B. Murphy Oration in Surgery.

An interesting program of papers and discussions dealing with surgical subjects of present day importance is being prepared by the Executive Committee of the Congress for sessions in Jordan Hall on Tuesday and Thursday evenings, in which eminent American and European surgeons have been invited to participate.

On Wednesday evening members of the Congress will be guests of the Boston Surgical Society at a special meeting in Jordan Hall for the presentation of the Bigelow medal.

Clinical demonstrations at the hospitals and medical schools will occupy the morning and afternoon hours of Tuesday, Wednesday, Thursday

and will be conferred upon a group of American and Canadian surgeons, and honorary fellowships upon the distinguished foreign guests.

logical conditions present can be had than in any other way 50 per cent, in which there were complications

INGUINAL HERNIOTOMY UNDER REGIONAL ANÆSTHESIA

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STATE AND PROVINCIAL SECTIONAL MEETINGS OF THE CLINICAL CONGRESS OF AMERICAN COLLEGE OF SURGEONS

The Spring series of group meetings of the College came to a close with sessions of the New England Section at Portland, Maine, May 15 and 16 and of the Maritime Provinces at Halifax, Nova Scotia, May 19 and 20.

NEW ENGLAND SECTION

was arranged at the Maine General Hospital, the Eye and Ear Infirmary and the Children's Hospital.

Over four hundred people, many of them laymen, crowded the hospital conference on Monday afternoon and listened to a program devoted to hospital betterment. Speakers from the central office included the director general of the College, Dr. Franklin H. Martin, Reverend C. B. Moulton, S. J., president of the Catholic Hospital Association, and Mr. T. E. Allen.

In addition, Dr. John Osborn Polak presented the advantages of standardization to the surgeon. Dr. George H. Stone, superintendent of the Eastern Maine General Hospital, explained the

Perdval P. Baxter, Governor of Maine, who made the address of welcome. The other speakers were as follows:

College Hospital
Experimental Medicine and its Relation to Public Health
Fred Bates Lord, M.D., Surgeon-in-Chief, Boston City Hospital
The Cancer Problem in New England, Frederick L.

Calumet of the Association
How You Can Aid Your Hospital, M. Robert Jolly, Superintendent of the Baptist Hospital, Houston, Texas.

Clinics were continued on the second day, May 16. The program was as follows:
The f

Public Information, John Osborn Polak, M.D., Brookline, N.Y.
The Relations between the Surgeon and the Medico-Legal Pathologist, George Burgess Magrath, M.D., Boston, Massachusetts.
Certain Problems in Connection with Fractures of Bones, Charles L. Scudder, M.D., Boston, Massachusetts.

MARITIME SECTION

No more enthusiastic meeting of the College has ever been held than that of the Maritime Section.

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Portland with the exception that Dr. Arthur Moore, professor of obstetrics and gynecology of

Massachusetts, superintendent of the Vancouver General Hospital and director general of the Victorian Order of Nurses, an instructive discussion of pertinent hospital problems was held with speakers from the audience participating. This round table discussion is steadily increasing in value and serves to give local hospital superintendents an opportunity to discuss their specific problems.

Portland citizens turned out en masse to the community health meeting. They filled the City Hall. An address was given by the public of Portland possessed a community conference in hospital affairs.

Dr. John F. Thompson of Portland, Maine, presided at the meeting, introducing Honorable

General headquarters for the Congress will be established at the Copley Plaza Hotel where the

rooms, etc.

The annual business meeting of the American College of Surgeons and the Clinical Congress will be held in Jordan Hall on Thursday afternoon at 3 o'clock.

Application for reduced railway rates has been made to the railway passenger associations, and it is confidently expected that a substantial reduction in fares will be granted for the meeting.

LIMITED ATTENDANCE—ADVANCE REGISTRATION

be reached some weeks in advance of the meeting

CLINIC TICKETS

The use of special clinic tickets has proven an efficient means of providing for the distribution of

clinic tickets, which are issued each morning at 8 o'clock for that day's clinics.

As at previous meetings, a complete schedule of the day's clinics will be posted on bulletin

program will be issued each morning which will contain the complete clinical program for the day with an announcement of evening sessions and other information.

REGISTRATION FEE

Plans for the Congress provide that no financial burden may be imposed upon the members of the profession in the city entertaining the Congress.

To each surgeon on registering in advance is issued a formal receipt for the registration fee, which receipt is to be exchanged for a general admission card upon his registration at headquarters in Boston. This card, which is non-transferable, must be presented to secure special clinic tickets and for admission to the evening meetings.

JULY 1922

International Abstract of Surgery

Supplementary to
Surgery, Gynecology and Obstetrics

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the Yale Medical School, spoke on Hospital Standardization from the Surgeon's Standpoint.

The round table discussion, led by Dr

Hospital Standardization and the American College of Surgeons. Malcolm T. MacLachlan, M.D. C.M. Superintendent, Vancouver General Hospital, Vancouver B.C.

How Can You Save Your Hospital. Mr. Robert Jell Superintendent, Baptist Hospital, Houston, Texas

Section Introduced His Honor McCallum Grant, Lieutenant Governor of Nova Scotia, who welcomed the visiting surgeons to the Province.

The program for the meeting follows:

H. K. MacDonell, M.D., Chairman, Presiding
Infections of the Knee Joint. Ross Miller, M.D. Aberdeen, N.S.

The Actual Chondry. John Stewart, M.B. C.M. Halifax, N.S.

An elaborate dinner given at the Halifax Club to the Fellows of the College closed the session. An executive committee for the ensuing year was elected for the Maritime Provinces, and, by unanimous vote, St. John was selected as the next meeting place.

ABSTRACTS OF CURRENT LITERATURE

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SURGICAL TECHNIQUE

Operative Surgery and Technique

- YOUNG, H. H. A. Operation for the Cure of Incontinence Associated with Epispadias
 KIRBY-TRICK, H. The Etiology of Primary Cataract
 HIRSHMAN, V. The Operative Treatment of Oesophagus with Lead Plate Sutures
 CASEY, G. W. Laryngectomy
 WOODS, R. Laryngectomy
 PERRY, J. A. Some Considerations of Cleft Palate Surgical Technique

Anastomosis

- LAWIT, G. and MIZERA, W. R. Intestinal Herniotomy under Regional Anesthesia: A New Method of Field Block

Surgical Instruments and Apparatus

- OSWORTH, L. D. A Rubber Stopper for Containers Used in Preparing Blood Serum for Intraspinal Injections
 FORTY, D. B. A. Improved Needle and Method for Obtained Blood Transfusions
 LACROIX, M. F. Section Drainage with Prevention of an Apparatus

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 YOUNG, R. I. A Case of Cerebral Injury and Cranioplasty
 MASON, D. The Indications for Operation in the Treatment of Injuries to any of the Brain
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 ABERNETHY, J. Central Fever Following Operations on the Brain and Spinal Cord
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 MAYER, W. The Route to the Hypophysis Through the Sphenoidal Sinus
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INTERNATIONAL ABSTRACT OF SURGERY

JULY 1922

ABSTRACTS OF CURRENT LITERATURE GENERAL SURGERY—SURGICAL TECHNIQUE

ANESTHESIA

Labat, G. and Meeker, W. R. Inguinal Herniotomy under Regional Anesthesia: A New Method of Field Block. *Surg. Gynec. & Obst.* 9: 220, 1918

Regional anesthesia is especially useful because of its safety and wide field of application. The only

with 5 to 10 c cm. of a 1 per cent solution through the pubic wheel into the margin of the internal ring for the purpose of surrounding the sac and blocking the genitofemoral nerve. The anesthesia remains complete from one and one-half to two and one-half hours.

The technique for a bilateral hernia follows the same principles, 200 c cm. of 0.5 per cent and 50 c cm. of 1 per cent novocaine, with 20 minims of adrenalin, being used. The operation is begun on the side first injected.

For an irreducible hernia the technique depends

induced with 100 c cm. of a 0.5 per cent and 50 c cm. of a 1 per cent novocaine solution. 10 minims of 1:1000 adrenalin being added for each 100 c cm. for the a. rage case 50 c cm. are sufficient.

At a point 2.5 cm. medial to the anterior-superior iliac spine an intradermal pubic wheel is raised here with 50 to 60 c cm. of equal parts of the solutions. injections are made toward the umbilicus and

injecting the cord when there is doubt it is best to expose it first.

In a strangulated hernia there is such diminution of sensibility that simple infiltration along the line of incision suffices. Deeper injections depend on pathologic changes in the hernia and surrounding tissues.

For inguinoscrotal and recurrent hernia the technique is the same as for unilateral inguinal hernia except that as the cord structures are particularly difficult to block it is best to inject them after exposure.

SURGICAL INSTRUMENTS AND APPARATUS

Osborne, E. D. A Rubber Stopper for Containers Used in Preparing Blood Serum for Intraspinal Injections. *J. Am. Med. Ass.* 9: 1234, 1918

Osborne describes a new rubber stopper for glass containers used in preparing blood serum for intraspinal injections which is made by boring a hole into the base of a standard rubber stopper of

the pubic spine upward. Final injections are made

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The indications for operation in compound fracture of the skull are clear. Just as in a compound fracture of any bone we have at the very

INDICATIONS

In depressed fracture of the skull the X-ray examination is of the greatest importance. Depressions should be raised or removed.

Increased intracranial pressure as an indication for operation in the treatment of injuries of the brain is of paramount importance. Its presence or absence should be the first determination made in any such case.

The intracranial cerebrospinal pressure depends on the relation between the secretory powers of the choroid plexus and the absorptive powers of the cerebral venous circulation.

The ability to diagnose this important and dangerous condition correctly depends upon our ability to measure first the normal cerebrospinal

an ordinary lumbar puncture the normal pressure varies between 6 and 10 cm. H₂O reading above 10 mm. is abnormal and evidence of an increase in intracranial pressure.

Intracranial hypertension may and often does cause death in the absence of any injury to the bony coverings of the brain. In Sharp's first series of 100 cases, the maximum cerebrospinal fluid pressure in 611 cases was from 2 to 14 cm. H₂O. Reported lumbar puncture with the withdrawal of sufficient fluid to lower the pressure to normal will frequently cure patients in this condition. In fracture with high pressure however lumbar puncture is dangerous as herniation of the medulla into the foramen magnum may cause death.

Alcoholics who have received or are suspected of having received a slight injury to the brain should have the pressure of the cerebrospinal fluid measured as soon as the patient recovers from the stupor and the treatment should be based primarily upon this finding alone.

Reflexes, the presence of blood in the cerebrospinal fluid obtained at puncture and bleeding from the nose, mouth and ears have no bearing whatever on the line of treatment to be adopted.

Intracranial pressure above 6 mm. and below

Laewen

Laewen repeated the operation performed by Dandy successfully four times, in which the source of the increased production of cerebrospinal fluid in hydrocephalus was obliterated by resection of the choroid plexus of the lateral ventricle. Laewen's operation was performed on a 4 weeks-old child with severe hydrocephalus. After widely opening the right lateral ventricle he was able to remove the whole plexus from the foramen of Monro to the entrance into the lower horn. The child remained alive for three weeks and then died from a suppurative meningitis due to a cerebrospinal fistula. A noticeable diminution of the circumference of the skull could not be definitely ascribed to the operative procedure although there was temporary dripping of cerebrospinal fluid through the fistula.

The sudden emptying of large amounts of cerebrospinal fluid is borne well in such cases since because of agglutination of the subdural space the hemispheres do not sink in and the circulation in the brain is not disturbed. The danger of hemorrhage

only in the presence of great distension and thus may out of the brain substance with marked hydrocephalus, as in other cases removal of the brain substance would be necessary. For the latter the author therefore proposes gaining access to the lateral ventricle by penetration of the corpus callosum, as he was able to do several times in dogs. Three dogs remained alive and showed no loss of function in spite of relatively large openings from one half to three fourths of the length of the corpus callosum. This suggests the possibility of substituting the open penetration of the corpus callosum as proposed by Laewen for puncture of the corpus callosum which sometimes fails because of the adhesion of the two hemispheres to each other and is not entirely harmless as regards secondary injuries.

Laewen's results in 100 cases of all for decompression, preferably subtemporal.

H. A. SICKLER, M.D.

days as a result of the adjuvant use of the drainage process in spite of relief from pressure and a child 6

the size to fit over the mouth of the rolled-top container.

The advantages claimed for this stopper are that it eliminates waste of gauze, cork stoppers and rubber bands, prevents contamination by foreign matter and reduces the time and number of assistants; the risk of bacterial contamination from all sources, and the cost of preparing the serum.

Fowd, D. B.: Improved Needle and Method for Citrated Blood Transfusions. *J Am Med Ass* 1932, LXV, 690.

The author has devised an apparatus which, by means of a 50-cm glass Luer syringe attached at right angles to the shoulder of a 23-gauge aspirating

needle, allows the sodium citrate solution to be mixed with the blood from the donor as it leaves the vein.

The blood is sealed by means of a rubber

ring rod.

The closed container prevents contamination of the citrated blood by foreign matter from the outside.

WILLIAM J. FOWDER, M.D.

SURGERY OF THE HEAD AND NECK

HEAD

Apfelbach, G. W.: Studies in the Traumatic Fractures of the Cranial Bones. I. (Edema of the Brain); II. (Bruise of the Brain). *Arch Surg* 9, 434.

Aside from the severe lacerations of the brain that occur at the time of injury, most bruises of the brain are caused by bleeding due to rupture of the pial arteries at or near the junction of the white and gray matter.

In many instances the left hemisphere with the

scalp and the intracranial contents. Bridging occurred when the patient coughed. The area denuded of bone was oval-shaped and at its widest part measured 2 by 1 in.

rigidly the dura mater to the brain and the spaces between the visceral layers of the arachnoid and pia are larger than at

by the optic thalamus, whereas a lesion of the post-central cortex affects the most highly specialized senses used in judging weight, shape, and size. The author's patient, however, could not differentiate between textures.

CARL R. STERNY, M.D.

Munro, D.: The Indications for Operation in the Treatment of Injuries Involving the Brain. *Briton M or S J* 1932, CLXXV, 334.

The indications for operation in injuries involving

H. A. NICHOLSON, M.D.

Young, R. F.: A Case of Cerebral Injury and Cranioplasty. *Glasgow M J* 1932, LXV, 63.

interference.

Persons who have received an injury to the brain do not develop symptoms and do not die from the fracture which may be present in the

of the

Min

which paralysis of the facial nerve occurs following the operation.

Four cases of hypophyseal tumor were successfully operated upon by the trans-sphenoidal route with

through the foramen spinosum 0.7 cm at an angle of 30 degrees frontal from this diameter and 1.37 cm at an angle of 36 degrees frontal from the transverse diameter. In 41 per cent of the skulls a marked bony prominence overhung the foramen spinosum. The motor root was always medial and somewhat superior to the sensory root central ward from the ganglion and could be easily distinguished from the sensory root. At operation, recognition of the motor root is corroborated by electrical stimulation.

Several cats were operated upon, the sensory root of some being cleanly divided while that of others was avulsed. After sufficient time for degeneration the pons was removed and sectioned. In no instance was there evidence of damage to the facial nerve within the pons.

From their study the authors conclude that paralysis of the facial nerve is due to traction exerted upon the geniculate ganglion through the greater superficial petrosal nerve in elevating the dura mater from the floor of the fossa.

LOYAL E. DAVIS, M.D.

In one case of long-standing acromegaly the

bone in the region of the mass was broken off a severe arterial hemorrhage from the carotid artery resulted. This was arrested by packing. Two weeks after the removal of the tumor there was renewed hemorrhage but after seven weeks no further

nodal sinus

The sella turcica may be (1) at the upper wall of the sphenoidal sinus (2) at the juncture of the

Grant, F. C. Anatomical Study of Injection of the Second and Third Divisions of the Trigeminal Nerve. *J Am Med Ass* 923 (1914), 794

danger but when there is an empty roomy sphenoidal sinus the search for and opening of the sellar sphenoidal sinus may result seriously even when the greatest care is exercised. STRANDBERG (2)

Kammet, A. B. and Davis, L. E. Surgical Anatomy of the Trigeminal Nerve. *Surg Gynec & Obs* 94 (1912) 237

divisions of the trigeminal nerve at their exit from the skull.

In the subzygomatic injection of the maxillary division the fixed point through which the first series of angles was determined was 3.5 cm anterior to the ear and on

the surgical anatomy of the gasserian ganglion. The objects of this study were to establish

In thirteen of these nineteen cases this was done on both sides.

The average angles determined in the 162 injections on eighty-five cadavers were 93.5 degrees in the horizontal plane and 115.5 degrees in the vertical plane. The angle at which the shaft of the needle entered the skin was measured from the malar bone posteriorly (before backward) for the horizontal plane and from the vertex of the skull

order to preserve it as consistently as possible and to find an explanation for the occasional cases in

months old with hydrocephalus which died as a result of collapse of the hemispheres following the relief of pressure

facsimile of the formation of an oval fenestrum
Berkman (2)

Aug 1929

1929 1929

surface of the dura mater and compressed the cortex of the Rolandic area. Because of its slow growth the brain had adapted itself to the gradual compression and to a great extent had preserved its functional capacity. The phenomena of motor

the osteoplastic flap was turned back and completely sutured.

The third operation was done four days later.

a fine drain

The postoperative course was excellent. Jackson convulsions persisted for only a few days. Headache ceased completely after three months. When the patient was seen fourteen months after

dilatation

good, that great importance is to be attributed to the manipulations of the brain and the changes in pressure. Why only a relatively small number of

the findings in the autopsy specimens and Roemer the author recommends as treatment the injection into the ventricle of adrenalin and hypophysectomy.

Winkler (2)

compressive trepanations

With regard to the diagnosis Miragillano states that in the case reported the microscopic and chemical examination of the cerebrospinal fluid showed a manifest lymphocytosis and a decrease of the total albumin. While these findings suggest an inflammatory process, and especially cerebral foci, they do not speak against cerebral neoplasia as they are characteristic of small-cell infiltration which in fact is caused by the trepanations and in tumors is associated with neoplastic infiltration.

W. A. BERNARD

great care must be taken not to seek the nerve too deeply. The needle should never penetrate to a

its use cannot be recommended unreservedly

practice on the cadaver to insure its safe performance

average angle in the horizontal plane was 100

the maxillary trunk and is carried along this wall and slightly downward to pass under the upper anterior curved edge of the pterygoid plate. By holding close to these two bony landmarks, the nerve is reached at about 4.5 cm. from the surface. If the needle is inserted too far the lateral wall of the nose may be pierced. This however is not a serious mishap. The needle is at all times well below the level of the optic nerve and anterior to the larger blood vessels. This is therefore a safe procedure and the angles are fairly constant. However because of the number of trials required in many cases before the nerve could be reached and the total failure in two of thirty-four it is feared that clinically this method may not be as satisfactory as was hoped.

Injection of the mandibular division. For injection of the mandibular division of the trigeminal nerve only one approach was considered. Injection of this branch is relatively so simple and satisfactory that no other method is needed. With the syngometer in the standard position the 2-cm. mark on the lower bar is selected. This corresponds approximately to the point of injection described by Levy

and Bandouin. Through this point 163 injections were made on eighty-one cadavers. The nerve was easily reached in every case. The horizontal angle averaged 91 degrees and the vertical angle 103 degrees. In fifty-two of the eighty-one cases the angles for injection on the left and right corresponded within 5 degrees and in twenty-six within 10 degrees. In three cases the variation was more than 10 degrees. In the 3.5-cm. approach to the second division the angles measured in fifty-three of the eighty-one cases were equal within 5 degrees right and left. In forty of these fifty-three cases in which the second division measurements were in accord on either side the third division measurements also were closely similar. These figures demonstrate the variability of structures on the opposite sides of the skull.

The needle is inserted below the zygoma opposite the 2-cm. mark on the lower bar. The direction is perpendicular to the skin in the horizontal plane and a little upward in the vertical plane. When once the zygoma has been passed, the needle point should be deflected slightly upward to strike the floor of the middle fossa. This bone is followed backward, bearing at the same time somewhat forward to avoid the middle meningeal artery which

if such a procedure was deemed necessary. If it seems desirable to affect only the third division, the needle point should be held a trifle lower. The nerve will then be pierced somewhat beyond its exit through the foramen. If the direction of the needle is accurate the nerve will always be reached within 5 cm. of the surface. The needle point should never be allowed to penetrate to a greater depth than 5 cm.

GROUX E. SURROU, M.D.

Gilpatrick, R. H. Ankylosis of the Jaw. *Boston Medical Journal*, 1914, 374.

The
of age
the inf
fever f

which he had been operated upon twelve times. Since the second year of life there had been some limitation of motion in the jaw.

Examination revealed a number of scars about the mastoid region on either side and a complete facial paralysis on the right side. The lower jaw was immovable and the skiagram revealed a bony union of the right and a fibrous ankylosis of the left temporo-mandibular joint. The lower jaw was of the infantile type. The boy was well developed and well nourished although he had subsisted on soft food for the past six years.

Operation was done under intratracheal anesthesia induced with gas and ether. An incision 1½ in. long was made in front of the right ear from a

of the face were in great measure overcome. In spite of these efforts to establish a uniform procedure

through a point 5 cm. anterior to the external auditory meatus. The syringe is in the same position as in the previous method, and the angle of the needle shaft to the skin is measured in the same way from above down and not from before backward. In the series of 120 injections on sixty

mandible. In such case opening of the jaw will allow the needle to pass. The vertical angle should then be increased a trifle the needle point being thus slightly deflected above the exact point at which the nerve is to be sought. At a depth of about 4.5 cm. the pterygoid plate will be met. Next the vertical angle should be decreased slightly by lowering the needle point. The point should then

placed on the 5-cm. mark on the upper and lower arms. If the shaft of the needle is held roughly in line with this anterior edge from behind downward

same time avoid penetrating the buccal mucous membrane closely approximates the 35 to 120

As the needle

taired were as follows: Group 1: a cure in two cases and improvement in one case. Group 2: a cure in 1 case, improvement in one case.

condition a microscopic examination of the gland

the patient to be operated on, mental changes such as delusion and melancholia, an age of over 65, the presence of edema due to a failing heart, diabetes or some other grave constitutional disease are contra-indications to operation.

followed by a cure in one case.

not real
p =

Of five cases of from three to five years standing, four were cured, no one was greatly benefited. Of five cases of from five to ten years standing a cure was obtained; two cases decided improvement in one, no improvement in one. Of six cases of more than ten years standing, both were cured.

patient is made to sit almost upright in bed. For forty-eight hours only cold liquids are given. A long stay in bed is not necessary.

are case
results
metabo

to 80% falls within a few weeks to an average of 25 per cent above normal. Occasionally it may fall to slightly below normal, but up to the present time no case in which this has occurred has shown clinical signs of hypothyroidism.

The author recommends surgical treatment for all cases of exophthalmic goiter.

Rosenbly, W. H. C. The Surgical Treatment of Exophthalmic Goiter. *Lancet* 9, col. 47.

Although it cannot be denied that some under lying primary cause is probably responsible for the

J. D. Egan, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Widdington. Reactions of the Thorax in Cases of Old Empyema of the Pleura (Chest Thorax reactions: signs, malacia, Pleuro-empyema). *Arch. f. Chir.* 19, 25, 444.

Widdington report on 22 cases of pleural empyema treated in Koerte surgical clinic from April 1, 1904, to December 31, 1920. Among these were

forty-three cases of influenza empyema. There were fifty-seven deaths, a mortality of 25.6 per cent. Fourteen of the patients who died had influenza empyema.

In spite of primary early resection of the ribs, chronic fistula developed in fifteen of the 22 cases. In three there was tuberculosis and in twelve pyogenic infection only. A purulent discharge was present in all or nearly all. In two cases the ex

new base was raised out and the condyle of the jaw removed. It was necessary to remove the coracoid process before the jaw could be opened. A flap with its base downward was secured from beneath the skin in front of the incision, carried over the stump of the condyle, and sutured with fine catgut to the pterygoid muscles. Convalescence was prompt and the wound healed by first intention.

In this case, as in many others, middle-ear sup-

the glands

does the size of the glands and the process has shown a tendency to spread should operation be undertaken, and then only the more extensively involved glands should be removed, the surrounding small glands being left for subsequent X-ray therapy. In the

NECK

Lalor, F. H. and Clute, H. M. The End Results of the Surgical Treatment of Forty Eight Cases of Tuberculous Cervical Adenitis. *Boston M & S J* 922, March, 1930.

The authors base their study on 33 cases of

V. G. Bremer, M.D.

Garcetti, J. U. A Case of Congenital Cystic Lymphadenoma of the Neck (Señal de caso de linfadenoma cístico congénito del cuello). *Revista Médica y Quirúrgica*, 9.

The mass measured 10 x 6 x 4 cm. in April 9.

number of cavities

Microscopic examination demonstrated clearly

shows therefore that such serous cysts begin in the interior of lymphocytic accumulations.

W. A. BARSTON

Trotsky, R. M. The Surgical Treatment of Esophthalmic Goiter (Das chirurgische Behandlung des Morbus Basedow). *Monographs* 921.

The author reviews the present status of our knowledge with respect to esophthalmic goiter dis-

Eight patients were found to have persisting

vein, the involved portion of vein is removed between ligatures. Fat and glands below the clavicle are dissected free from the artery and vein. The sternal fascia is stripped off far enough to expose the costal cartilages and the dissection is continued downward from the lower sternal end by reflecting upward the fascia covering the serratus magnus and latissimus dorsi. If the cancer is located in the outer quadrant three to five of the upper

is whom no glandular involvement could be demonstrated at the time of operation. In the forty-six cases with local recurrences the glands were involved at the time of operation in 80.4 per cent. Of eighty-six patients operated on before the glands were involved, 64 per cent are alive from five to eight years after the operation and there are known recurrences in only six. Of 133 patients in whom the glands were found to be involved at the time of operation, 30 per cent are alive from five to eight years after the operation.

The highest percentage of deaths occurred among the youngest and oldest patients. The chance for cure seems definitely higher in patients over 50 years of age.

One hundred and four (73.3 per cent) of the 138 patients died from recurrences. Six of the 218 patients died within six months after operation. By the end of the first year forty-six were dead; by the end of three years, ninety-two; by the end of four years, 107; and by the end of five years, 120.

At the end of five years twenty-nine of the 133 patients in whom glandular involvement was demonstrated at the time of operation were alive and fifty-six of the eighty-six patients in whom the glands were not involved at the time of operation were alive. Regardless of glandular involvement eighty-five of the 218 patients were alive at the end of five years.

H. A. McKNIGHT, M.D.

axilla, and is removed after twenty-four hours. The skin is approximated at intervals without

months

Operation is rendered futile by (1) deep involvement of the chest wall (2) fixation of the axillary mass (3) very extensive skin involvement (4) enlarged and fixed supraclavicular glands (5) secondary growths in the lungs, liver or other viscera and (6) bone metastases.

Improvement of results may be expected when

which is due to the incidence of cancer, better general agreement as to what constitutes pre-cancerous lesions and greater co-operation between pathologists and surgeons. Early diagnosis and fibro-sarcoma should be removed.

WALTER C. BURKET, M.D.

Strunk, W. L. Cancer of the Breast. The Results in 218 Operations. *J. Amer. Surg.* 1911, 75.

Strunk has tabulated the histories of 46 patients operated upon for cancer of the breast at the St. Louis Clinic. The recurrences were mostly in the late cases, evidently because cancerous tissue was left in regions inaccessible to the knife. The highest percentage of cures and the infrequent recurrences were found in cases in which operation was performed early in the course of the disease before glandular involvement could be demonstrated.

In the series studied local recurrences are known to have occurred in only 10.5 per cent of the patients

TRACHEA AND LUNGS

Glendening, L.: Abscess of the Lung. *Laryngoscope* 93, 1903, 3.

(1) the X-ray findings (2) the bronchoscopic findings (3) the clinical findings (4) the pathologic findings (5) the results of treatment (6) the prognosis

is a pre-
Next in
body and

The physical signs are few and usually are present over a very small area. The most constant sign is a localized area of rales. The X-ray is of immeasurable diagnostic value.

the best anesthetizing procedure in most cases. The preferred incision was that of Schede for unilateral thoracoplasty. In one case four lower ribs were resected and the upper part of the pleura was obliterated by attaching the lung to the chest wall.

The Schede operation was combined with a stripping of the lung when this was possible without

reduce the mortality from cancer of the breast, uterus, and hip.

A lump in the breast should be considered as emergency surgical condition. If the diagnosis is doubtful, it is better to remove a few breasts unnecessarily than to leave a malignant tumor. If, inadvertently the surgeon cuts into suspicious tissue the knife, other soiled instruments, and gloves worn by him and his assistants should be discarded for others. Suspicious tissues should be swabbed with carbolic acid or treated with the

with chronic non-tuberculous empyema, anastomosis

cases. With these results in mind the author describes the following operation which resembles the Healdley operation in some particulars and differs from it in others.

UNUSUAL CASE

Davis, B. B.: Carcinoma of the Breast with Consideration of Precancerous Conditions. *J. Am. M. Ass.* 1911, LVIII, 779.

A three or five-year period without recurrence is an arbitrary standard. The author has had patients remain well for five, eight, nine and ten years with recurrence from which

third incision extends from the lower margin of the elliptical incision, downward and inward along the linea alba almost to the umbilicus. The skin is dissected up free from the subcutaneous fat as possible to the clavicle above upward to the opposite side of the sternum, laterally to expose the distal ends of the serratus magnus and the border of the latissimus dorsi, and downward to divide the upper one-fourth of both recti abdominis and the upper attachments of the external oblique muscle. Such undermining of the skin permits the removal of the widest possible lymph

of axilla

in the axillary region the axilla is divided at its portion of the pectoralis major is divided at its humeral attachment. The muscle is then split and turned. The coracoid

cerous glands adhere to the axilla

The case reported was that of a child of 3½ years in which the roentgenogram showed a markedly

examination revealed very marked dullness over this area which extended down to the base of the lung and a altered respiration. Aspiration withdrawn pus containing bacteria.

In view of the roentgenological finding and the positive diase and cutaneous reactions a probable diagnosis of pulmonary tuberculosis with cavity was made particularly because tubercle bacilli and anaphoric breathing were demonstrable. The autopsy substantiated this diagnosis. *Praxis (L)*

Rbat L., and Strobl, A.: Gaseous Resorption and the Maintenance of Sub-Atmospheric Pressure in the Pleura. (Sur le rôle de la diffusion dans la résorption gazeuse et le maintien de la pression sous-atmosphérique dans la plèvre). *Praxis* *abd.* Par. 9 111 69

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skin, causing just enough tension upon the pedicle

never sutured

The tube from the lower part of the chest is clamped after the lobe of the lung has been distended by the intrapleural pressure and as soon as the patient is in bed this tube is carried beneath the surface of antiseptic liquid in a vessel on the floor.

After almost every lobectomy there is an outpouring of bloody serum into the pleura. Therefore unless the patient is in exceptionally good condition, with normal blood pressure and hemoglobin blood transfusion is necessary.

Asiurobic infection and tension pneumothorax are dangerous complications which follow this operation. Oxygen flowing through the chest cavity may be tried, and negative pressure in the chest may be produced by paracentesis with the tube under water and the patient standing. Hemorrhage from the stump must also be borne in mind.

The stump finally sloughs off and a bronchial fistula may form but the latter usually closes.

The author reports his case and illustrates them with roentgenograms. H. A. McKeown M.D.

Kennedy, C. J. F.

The roentgenogram

As to the frequency of this form of tuberculosis in children

been made from time to time to analyze the intrapleural atmosphere the authors state that if an

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tion of different gas introduced into the body. The theory of diffusion proves also that what are considered in some as paradoxical phenomena are natural and necessary phenomena. There is no need to invoke the aid of a pleural vacuum or other unknown force of nature to explain them.

W. A. BROWN

Kovnolovitch, N.: A Rare Case in Which a Bone Remained for Eight Years in the Inferior Ramus of the Left Bronchus. (Un cas rare d'un os resté pendant huit ans dans le ramus inférieur bronchique gauche). *Arch. med. exp. et Path. Gén.* Petrograd 1920.

The author effected a cure in a case in which a bone 2.5 cm long, 1 cm wide and 4 mm thick had remained in the inferior branch of the left bronchus for eight years. The patient was a woman 35 years of age. The swallowing of the bone was followed by

A bronchoscopic examination should always be made to locate a foreign body if present, and to obtain further information as to the location of the

passage. The emptying should be done at least twice daily and also an hour before operation. The patient's blood must be grouped and a sur-

air and thauw

thorax. This Clendening has used with a successful result in one case. R. C. Weiss, M.D.

Essential, H.: Resection of the Lung for Suppurative Infections, with a Report Based on Thirty One Operative Cases in Which Resection Was Done as Intended. J. N. Surg. 1911 117: 157

interspace from just behind the angle of the ribs

directly, a short incision is made in the intercostal spaces at the most easily accessible part of the wound, hugging closely the upper border of the rib

but rarely by an apparent cure.

The most common cause of the disease is infection due to the aspiration of infected material during tonsillectomy.

Children and young adults are by far the best

posteriorly and upward parallel with the just the border of the scapula and about an inch or more from it

single layer of iodiformed gauze about 3 in wide placed one beside the other the ends long

safety pin

foreign body or a tumor in the trachea.

The X-ray may show all these things. Sometimes however the bronchoscope will reveal what the X-ray cannot disclose.

Two days of postural preparation are desirable except in rare cases of emergency. When there has been a considerable daily discharge the patient usually knows how to empty out the bronchial

also brushed

The necessity for differential pressure having passed the second stage of the operation, the lobectomy itself can be done with the least possible respiratory embarrassment and even with ordinary inhalation anesthesia.

The pulmonary ligament can be quickly divided with the scissors. The pedicle of the lobe is now

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Pneumonia

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The stump finally toughs off and a bronchial fistula may form but the latter usually closes.

The author reports his cases and illustrates them with roentgenograms.

H. A. M. K. K. M. D.

Karlström G. A. C. M. D. M. D.

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W. A. BRUSH

R. M. M. M.

The roentgenogram of an interlobar vein

M. M. M. M.

The author effected a cure in a case in which a bone 2.3 cm long 1.0 cm wide and 4 mm thick had remained in the inferior branch of the left bronchus for eight years. The patient was a woman 35 years of age. The swallowing of the bone was followed by

PHARYNX AND ESOPHAGUS

Jirasek, A.: Closing of Defects After Operations on the Pharynx (Verkantung von Defekten nach Pharynxoperationen) *Cesap 11b* 1938 12, 38

importance

The stenosis may be funnel-shaped, tubular, straight, curved or irregular. If stenosis are given proper treatment severe strictures will not occur.

slowly The oesophagoscope is also of value for

divided the second half of the map was again turned over at an angle of 180 degrees, and the wound surface of the first half thus covered. A permanent closure was obtained.

Kron (2)

Seiffert, A.: Finding of the Tract in Severe Forms of Stenosis of the Esophagus (Aufindung des Trages bei hochgradigen Oesophagusstenosen.) *Monatsschr f Chir* 92 19 658

The frequency of erosion of the esophagus markedly increased in Germany during the war

stomach gradually and thereby to pass several strictures.

The dilatation of the stenosis is accomplished by drawing the tube back over the sound, intra-

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Bopp, M.: Hematomata and Abscesses of the Anterior Abdominal Wall (Hämatome et abcès de la paroi abdominale antérieure) *J de chir* 923 112, 245

of the sheath of the rectus muscle (3) those of the preperitoneal space or the so-called abscesses of the space of Rokitansky and (4) those of the cellular subperitoneal tissue.

Abscesses of the superficial subcutaneous tissue are usually of traumatic origin. They may give rise to a marked lymphangitis and are commonly situated about the umbilicus. It is well known that such per-umbilical infections are serious as

the
()
bone

they may produce peritonitis or septic thromboses patient being made worse instead of better. Fol-

evaluated

The medical treatment given at the present time is woefully inefficient for the rich it is possible for the poor it is scarcely obtainable

muscle

Abscesses may develop in the preperitoneal space primarily or may be secondary to an abdominal infection. Fractures of the ribs with infection of

denervation

The surgical procedures which have been adopted are the following: (1) gastro-enterostomy (2) ex-

MacLennan, A. The Radical Cure of Inguinal Hernia in Children with Special Reference to the Embryonic Rests Found Associated with the Sac. *Brit J Surg* 9: 445

Since August, 1914, the author has operated

causes the tissue was adrenal cortex

The more usual adrenal rests closely resemble tomato seeds. They adhere to the outer side of the sac between the vessels of the cord and the vas. A bilobed nodule is uncommon. The ultimate fate of these accessory glands is probably calcareous degeneration. To date they have been found only in males.

The article is supplemented with illustrations showing different types of embryonic rests.

E. C. ROSSMAN, M.D.

GASTRO-INTESTINAL TRACT

Moynihan, B. and Wilson, A. J. The Treatment of Gastric Ulcer. *Lancet* 9: 207

Hæmorrhage and perforation are the only char-

acter by alkalizing the gastric contents. In Moynihan's opinion there is no reason for the belief that a alkaline medium favors the healing of a gastric ulcer.

It is an interesting fact also that when gastro-enterostomy has been performed for duodenal ulcer a gastric ulcer may develop. Moynihan believes

condition renders a more extensive operation too dangerous.

Simple excision of the ulcer is unsatisfactory because it is followed by obstruction due to the contraction and distortion of the stomach or because the ulcer recurs along the suture line.

Gastro-enterostomy combined with resection does

between acute and chronic ulcers is not definitely known.

Chronic gastric ulcer is rare. Its incidence is half that of duodenal ulcer and it occurs twice as often in men as in women. Incorrect diagnosis is responsible for many useless gastro-enterostomies. The

performance of a gastro-enterostomy. According to the records at present available this operation is simple, safe and satisfactory in respect to after results. Next to gastrectomy Moynihan prefers the Halfour operation.

Median resection is sometimes followed by recurrence along the suture line as well as contraction and stasis of the stomach.

Gastro-enterostomy combined with jejunostomy is occasionally indicated in cases in which there is a large firm, or perforating ulcer and the patient's condition is extremely poor. In such cases the author performs a gastro-enterostomy in Y making a very large opening in the stomach. The proximal part of the jejunum, forming the Y, is

In the author's experience, gastrectomy is the

gastric erosions may arise in the duodenum. For

this method in all cases capable of being used satisfactory

Perforation is extremely rare in acute gastric ulcers. If it has occurred, the ulcer is chronic and simple suturing will not effect cure; hence a gastro-enterostomy should always be performed.

Pyloric and duodenal ulcers are satisfactorily treated by posterior gastro-enterostomy. There are two possible objections to this treatment: (1)

is any doubt as to the nature of the lesion a partial gastrectomy should be performed.

Most authorities place the frequency of gastro-jejunal ulcers at 2 per cent. The mortality of a

more satisfactory

Hour-glass stomach is much more common in women than in men, is usually due to a simple ulcer and is very often associated with ptosis. For this condition the choice of treatment lies between (1) knife or cautery excision with gastro-enterostomy and (2) partial gastrectomy. Excision alone is insufficient. If there is any suspicion of malignancy partial gastrectomy is, of course, the opera-

tion of choice. Occlusion of the pylorus with silk mattress sutures is temporary only, lasting about two months. Permanent occlusion is unnecessary. CLAYTON T. ANDERSON, M.D.

Kreuter, E.: Gastropexy with the Ligamentum Teres of the Liver as Preliminary Operation for the Excisional Treatment of Carcinoma of the Stomach.

The following (first) case is given as an example.

The patient was a woman, 55 years of age, who had been suffering from gastric cancer for several years. The tumor was found to be in the pyloric region of the stomach. The patient was in poor health and had lost considerable weight.

An anterior or posterior anastomosis was made, the ligamentum teres was detached close to the liver and finally directed from the peritoneal

to the stomach.

experiments

Book (2)

Kamenzow, N. J.: Myomata of the Stomach (Zur Lehre von den Myomen des Magens). *Zeitschrift für Chirurgie* 1922 4, 78.

This article is based upon the following case

The patient was a woman, 55 years of age, who had been suffering from gastric cancer for several years. The tumor was found to be in the pyloric region of the stomach. The patient was in poor health and had lost considerable weight.

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form of pronounced anemia

The patient was in poor health and had lost considerable weight. The tumor was found to be in the pyloric region of the stomach. The patient was in poor health and had lost considerable weight.

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a small ulcer through which the sound passed into the depths of the softened tumor.

Microscopic examination showed smooth inter-

The outer layer of the muscularis passed immediately

Since the time of Virchow the myomata of the stomach have been classified as internal and external

myomata are the more common and attain a greater size than internal myomata. The connection between the muscle layer of the wall of the stomach and the muscle elements of the tumor found in the author's case was interesting. Ulceration of the mucous membrane over the tumor has an important clinical bearing as it may cause severe hemorrhage.

The benign myoma may degenerate into a malignant form (Borst and others) described as myosarcoma, myoma sarcomatosum, myoma malignum, etc. The growth described belongs to the mixed

the tumor from the muscle layer of the stomach

the palpable tumor may be of importance. A few cases in which surgical treatment of gastric myoma was successful (Hilberd, Elsch, Moser, Tientsy) are on record.

SCHWARTZ (7)

Mason, C. H. and Magoun, J. A. H. Jr. Postoperative Intra-Abdominal Hernia. *Arch Surg* 1922, 75: 324.

Mosman called attention to the possibility of herniation of the small intestine into the lower peritoneal cavity through an abnormal opening in the transverse mesocolon. Four such cases were reported. It was only when fatalities occurred from such hernia following posterior gastroenterostomy that surgeons began to suture the stomach or jejunum to the transverse mesocolon. At first the opening in the transverse mesocolon was sutured to the stomach or bow before the anas-

tomosis was made. Today most surgeons make the anastomosis first and then suture the mesocolon.

Another form of internal hernia is herniation of the small intestines through the loop of jejunum formed in both the anterior and posterior types of gastrojejunostomy. Ten such cases have been reported in the literature. The second operation in these cases was done six days after gastrojejunostomy in four cases, eight days later in one, twelve days later in two, fourteen days later in one, one year later in one and two years later in one. Four patients recovered and four died. The results in two cases were not recorded.

The authors report two cases of internal hernia following gastrojejunostomy and one following colostomy.

Case 1. Anterior gastrojejunostomy for ulcer on the anterior wall of the duodenum. Operation on the ninth day for obstruction due to internal hernia. The patient died.

Case 2. Posterior gastrojejunostomy for perforating ulcer of the duodenum. Operation for internal hernia performed almost one month after the first operation. Recovery.

Case 3. On February 17, 1921 a left rectus colostomy was done and on February 26 an operation for internal hernia. The patient died.

J. F. BURROW, M.D.

Wills, H. T. An Aid in the Differential Diagnosis Between Acute Toxic and Acute Mechanical Ileus. *Annals of Surg* 1921, 73: 100.

A definite differential diagnosis between acute toxic ileus and acute mechanical ileus as produced by the postoperative formation of adhesions or by adhesions from other than operative causes is essential for the proper treatment as emesis, pituitrin, etc., are indicated in the toxic type and contrast indicated in the mechanical type while in the

upper portion of the intestine. Vomiting has two mechanisms a mechanical, which is a spasmodic contraction of the respiratory (abdominal) muscles and the inspiratory muscles (diaphragm) and the

muscle is caused by the toxins produced by the protein disintegration of the

stimulation

The diagnosis and treatment of postoperative ileus should not be delayed more than seventy-two hours
JOSE D. KILM, M.D.

Becchetti, G. Mesocolic Invagination Intestinal Resection; Recovery (Invaginazione mesocolica; resezione intestinale gangliare) *Politis Roma*, 1922 XIII vol. cliv. 139

The case reported by the author was that of a youth aged 27 years. The clinical and X-ray diagnosis was incomplete intestinal occlusion due probably to chronic invagination. A median

about 10 cm. of the proximal colon. The mesocolic invagination was double.

The case was particularly interesting from the point of view of pathogenesis. In the author's opinion the invagination was rendered possible by the persistence of a mesocolic ascending mesentery. Therefore intestinal resection is the most suitable method of treatment to prevent recurrence.
W. A. BARNES

Bloch, O. E. Some Appendiceal Vegetaries. *Internat J Surg* 9: 111-112

made of

1. Appendicitis associated with pain in the right testicle and irregular frequent micturition due to an

extending retrocecal abscess over the right ureter at the pelvic brim.

A retrocecal appendix with pain simulating that of pneumonia.

3. Advanced appendiceal involvement with slight symptoms and signs.

4. Cases in which the only outstanding signs are vomiting and leucocytosis.

In conclusion Bloch states that no one sign or symptom is always present. External evidence

Hartmann, H.: Inflammatory Strictures of the Rectum. *Lancet* 1912, col. 307

are other causes. Different causes may be associated. Chronic uterine inflammation, dysentery, and leprosy are rare causes. The influence of chronic constipation and hemorrhoids does not seem to be proven.

affected

The stricture lies generally in the lower region,

condition is called prostatic abscess

... and resembling fissures
osteom
above
base
above
normal

aspect

Very often fistula may be seen below the rectum, beginning as a rule below the stricture. Callosities and even large sclero-lepomatous perirectal masses are sometimes found.

On microscopic examination one is struck with

and below a single layer of embryonic cells when the epithelium is ulcerated, the tissue of the stricture is composed of hard, fibrous layers separated by embryonic diffuse strips invading and separating the innermost layers of muscle fibers. Sometimes obliterated vessels areas of necrosis tuberculous

Specific treatment has no effect upon the stricture. Dilatation, the most usual treatment, must be applied gently. The bougie must be passed through without causing pain the procedure should be

the condition worse

When the disease is limited to the termination of the rectum, complete extirpation of the diseased areas effects a permanent cure.

Fistula should be incised and curetted. In very severe cases of long standing, ileocolostomy is indicated.

CLAYTON I. ANDREWS, M.D.

low from the beginning to the end, a period of twelve years.

Before secondary infection takes place anti-syphilitic treatment may effect a cure.

The symptoms of proclita nearly always precede those of stricture. These symptoms are feeling

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Harner W. B., Hargis, E. H., and Van Meter V. C.: Studies of the Function of the Gall Bladder. *Surg. Gynec. & Obst.* 9: 1119, 1917.

There is a great diversity of opinion among investigators as to the function of the gall bladder. The theories vary from the one extreme that the gall-bladder is a vestigial organ like the appendix to the other extreme the theory advanced by K.

stenosis. The edge of the anus and neighboring parts may present erythematous eruption. Bleeding may also occur. The tools may cause such great pain that the patient is afraid to eat. Again the stools may be liquid and there may be true incontinence. The stool may be flat or passed in small ovoid pieces.

As a result of infrequency of defecation there may be abdominal distention and cramps. These disappear after an extensive evacuation. Complete obstruction has been reported. The patient loses weight and strength and may die from

from the same sources are not in accord on this subject.

vestigial organ.

C. H. Mayo has stated that the gall bladder

anus. The inflammatory stricture never forms a tumor. In the suppurating type small vegetating tumors sometimes develop.

Proctoscopic examinations reveal red, uneven ulcerated spots sometimes with vegetations and small ulcers. Resulting bacteremia or fistulae may first call the patient's attention to his condition.

gall-bladder can play no part in preventing the bile from flowing into the pancreatic duct and pancreas as this does not occur after cholecystectomy.

From a minute study of the nerve blood and lymphatic supply of the gall bladder and experimental work on animals, the conclusions arrived at by the authors are as follows:

The function of the gall-bladder is that of a concentrator of bile the concentration being effected chiefly by the lymphatics.

2. The gall-bladder is emptied of its contents—if it is emptied at all through the cystic duct—by pressure of adjacent distended and congested organs during digestion and by the milking action

of the duodenal peristaltic waves. The rhythmic contractions of the gall-bladder are of no importance in this respect.

3. By means of the lymphatics infections are carried to the glands at the head of the pancreas, producing a lymphangitis, a lymphadenitis, and a lymph stasis which later becomes organized and results in chronic pancreatitis.

I. E. BRADLOW, M.D.

Gibson, T. C. Non-Surgical Drainage of the Gall Bladder. *Arch. of Med.* 1921 22: 79.

The author describes the technique of non-

sterilized duodenal tube to the stomach. Aspirate and examine the gastric contents. Wash the stomach until the returned fluid is clear then lavage first with a 1:10,000 potassium permanganate solution or an astringent zinc-chloride solution and then with sterile water. Leave a small

or by (thus

by the repeated injection and immediate removal of 30 to 40 ccm of the solution. Inject 30 ccm of a 33 per cent magnesium sulphate solution into the duodenum to relax the sphincter of Oddi and to excite the flow of bile. Attach the duodenal tube to the vacuum bottle with a glass cannula to serve as a window and begin to recover the magnesium

drainage lavage the duodenum with 300 to 500 ccm of some antiseptic solution (Ringer's solu-

turbidity bacteriological, and microscopic findings should be studied.

not be depended upon alone. As a therapeutic method it is of value in all conditions associated with biliary stasis, the early stages of cholangitis and cholecystitis, but of little use in cholelithiasis and chronic cholecystitis with thickening of the gall-bladder walls. WALTER C. BURKART, M.D.

McEachern, J. D.: Hepaticoduodenostomy for Injury of the Bile Ducts During Cholecystectomy. *Ann. Surg.* 1922, LXXV 344.

several weeks or months later by a permanent biliary fistula or by jaundice or some other sign of obstruction. These injuries to the bile ducts are due mainly to the failure of the operator to identify the cystic duct because of poor exposure of the operative field.

Three clinical types of cases due to operative injury during cholecystectomy are:

The case of biliary fistula with clay-colored stools, the condition being present continuously since the operation.

2. The case in which the patient becomes deeply jaundiced immediately after the operation and there is little or no discharge of bile in the stools or on the dressings. Later a biliary fistula usually develops.

3. Cases which improve quite well after the operation except that the drainage of bile is greater than usual. All goes well until several weeks or months after the fistula closes, when the patient develops jaundice, slight at first and intermittent, but later tending to become deeper and more permanent.

common-duct obstruction. If bile are obtained but no H. bile there may be cystic duct obstruction. The amount color viscosity

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Coffey is impractical, and an attempt to carry out the principle by passing a rubber tube obliquely through the duodenal wall is of doubtful value. After direct implantation of the hepatic duct into the duodenum a patient operated upon by Mayo remained well after fifteen years, but duodenal fistula with peritonitis from leakage of the intestinal contents or death from starvation may follow the procedure.

When the patient's condition is serious it is

E. K. LANGFORD, M.D.

Richter, H. M.: Closure of the Abdomen Without Drainage After Cholecystectomy and Cholecystectomy. *Surg. Gynec. & Obst.* 19 2, 1910, 180.

case of peritonitis not too far advanced he has closed the abdomen without drainage. These

only cases in children under 3 years of age there have been no deaths. In twenty cases of perforated gastric and duodenal ulcer operated upon consecutively one moribund patient died six hours after the operation and one died five weeks later from subphrenic abscess.

In cholecystectomy the author uses very fine catgut to suture the cystic duct. The maximum bile tension is less than the arterial tension of small arteries. Heavy ligatures that may act as a foreign body. No further treatment of the cystic duct is attempted after ligation. The raw surface of the liver left by the removal of the gall-bladder

prevents primary union.

The omission of drainage lessens postoperative discomfort. Hernia does not occur and the average stay in bed is five days.

In persistent oozing from the liver surface and the presence of jaundice gauze packing is necessary. Drainage may be necessary in unusually active infection or suppuration outside the gall-bladder.

When the common duct can be sutured and closed without drainage the advantages are the same as in cholecystectomy. There must be good peritoneal coat. The surgeon must be sure that no

In nineteen cases treated by Richter there were two deaths. Both of the patients who died were jaundiced. In one of these cases the operative work was very extensive. The second patient had pernicious vomiting which persisted for several weeks before the operation and continued afterward until death. Both cases required transduodenal opening of the ampulla to release impacted stones.

In 100 cholecystectomies there were two deaths. One was that of a patient with carbuncles of the liver and nephritis and the second was due to a frank pneumonia. I. E. BARNES, M.D.

Jones, D. F.: Acute Pancreatitis. *Boston M. & S. J.* 9, 1914, 337.

Experimental and clinical findings lead the author to conclude that there are two types of acute pancreatitis of quite different etiology.

1. Interstitial pancreatitis due to infection of the interstitial tissue, the infection coming frequently from the biliary system. This is Maudsley's theory, but there is no experimental proof that acute hemorrhagic necrosis can be caused by infection through the lymphatics. So far as we can learn, the pancreatitis associated with infections of the biliary system is, as stated by Opac, an inflammatory change in the interstitial tissue of the gland. On the other hand, the condition found in the pancreas in acute pancreatic necrosis is primarily a necrosis of the parenchymal cells, and in certain cases at least the necrosis is localized along the involved pancreatic duct.

2. Pancreatic necrosis: a necrosis of the paren-

CASEY, M.D.

Mayo, W. J.: The Relation of Splenic Syndromes to the Pathology of the Blood. *Illness M. J.* 9, 1914, 75.

The most interesting of the splenic syndromes are those concerning the blood, which may be regarded as an over-

disease is not too far advanced, removal of the

or in cure it is by no means proved that the spleen was the cause of the ailment.

The spleen plays a very important part in the five syndromes of splenic anemia, pernicious anemia, hemolytic jaundice, and polycythemia, which concern the erythrocytes and in splenomyelogenous leukemia, which concerns the leucocytes.

Splenic anemia. Splenic anemia is a clinical entity the chief characteristics of which are splenopathic enlargement of the spleen and chronic, progressive, and intercurrent anemia with leucopenia. These are the antecedents of phenomena related to obstruction of the portal circulation

unknown origin have been operated on in the Mayo Clinic with nine deaths.

Pernicious anemia. The etiology of pernicious anemia is unknown. The early symptoms are indefinite and by the time a diagnosis can be made the disease is usually inoperable. The size of the spleen does not seem to bear a definite relationship

pernicious anemia only when the patient has reached a stage which will eventually result in death.

atics of chronic secondary anemia but is not relieved by medical treatment is potentially a

blood by the spleen are responsible for splenic fibrosis and these in turn are responsible for cirrhosis of the liver.

It is known that the spleen acts as a filter removing bacteria from the blood stream. Unable to

unknown. The characteristic features are an enlarged spleen, chronic jaundice with concretions, normal bile-colored stools, and an absence of bile in the urine. It is certain that in hemolytic anemia the spleen unconsciously destroys the

author's experience confirms the observations of Chauffard and Vidal who pointed out that the

period since operation has been too short to permit a conclusion with regard to the permanency of the cure

with one death

Polycythemia. Polycythemia is a condition of the blood in which the number of erythrocytes is decidedly in excess of the normal. This is constant and not due to temporary dehydration. The

disappears below the costal margin and the leucocytes decrease from hundreds of thousands to less than 10,000. As the spleen again increases in size the leucocytes increase the erythrocytes decrease and the symptoms return.

It is possible that we recognize leukemia as a disease only after it has reached the hopeless stage. In one case in which splenectomy was done for

to destroy the normal number of erythrocytes and has thus produced hyperactivity of the bone marrow.

A few patients with polycythemia have been observed in the Mayo Clinic. The spleen of one who was splenectomized weighed 900 gm. A section from the liver did not show disease. The patient regained his health to a remarkable degree and all signs of the condition have disappeared but the

dropped to less than 40,000 and the patient was greatly improved. She lived in good health for more than two years.

operation four more than four years and one more than five years. (W. C. CRANFORD, M.D.)

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Faldino, G.: Research upon the Development of the Joint. (*Ricerche sullo sviluppo delle articolazioni*) *Chir. e organs. e mesenchima* 9: 600

Faldino's studies were made on twenty human embryos.

cavity from the tissue surrounding the acetabular ridge (observed in embryos measuring 25 to 35 mm.)

the testes are the first to be differentiated.

5. The differentiation of each joint is always preceded by differentiation of the muscle around

1. The joints develop from the mesenchymal

1. The

2. The tissue forming the intermediate disc is outlined from the surrounding tissue by a connective lamina which very early becomes differentiated from the primary blastema (observed in an embryo of 18 mm.)

3. The external and internal ligaments of certain articulations are differentiated successively after the articular capsule at the expense of the intermediate disc (observed in an embryo of 3 mm.) The round ligament in the coxofemoral joints seems to have its origin, outside of the primary acetabular

and by mechanical displacement without degenerative hyperplastic phenomena in the cells of the intermediate disc

are visible within the phalanx. These resorptive processes soon separate the greater part of the

Cav. IV

9. By successive differentiation some of the free portions of the intermediate disc and of the septa which primarily divide the articular cavity give rise to the formation of synovial villi. There is very early penetration of vessels and in some joints these are particularly abundant (in the knee of the embryo measuring 41 mm).

10. The cellular layer which covers the internal layer of the capsule and articular heads is a differentiation of the connective tissue which, following mechanical action, assumes the form and disposition mentioned

processes of the bone; therefore there is regeneration of the phalanx only if periosteum and marrow are conserved. If none of the marrow remains or if the bone-marrow cavity is not open, regeneration is incomplete or lacking entirely. When regeneration does not take place after primary amputation of the phalanx in spite of conserved periosteum and opened marrow cavity, the reason apparently lies in the absence of inflammatory stimulation. The most frequent cause of merely defective regeneration is suppuration proceeding from the bone and on this it can exert no decisive influence. GROSSER (2)

Mandl, F., and Paluszky, J.: The Bone Deformities of Football Players (Ueber die Bruchdeformitäten der Fußballspieler). *Deutsche Zeitsch f Chir* 9 (1914), 370

Katta, F.: Septic Gangrenous Osteomyelitis Due to Bacillus Gail (*Distomatia putrida gangrenosa* de bacterium cob). *Chir d'opér et anesthésie* 9 2, 1914, 3

Beck, H.: Regeneration in Osseous Paralysis (Regeneration bei Knochenparalysen). *Arch f kl Chir* 9 (1914), 748

Beck differentiates three varieties of bone sequestra: (1) cortical sequestra of the head of the phalanx; (2) those causing loss of the entire phalanx

typhoid, 1 case

and by mechanical displacement without degenerative liquefactive phenomena in the cells of the intermediate disc.

8. At the beginning of its formation the articular cavity is single in some articulations but in others is divided into sections by septa. These divisions are reduced and in part disappear so that when complete development has been reached there is only one cavity.

9. By successive differentiation some of the free portions of the intermedial disc and of the septa which primarily divide the articular cavity give rise to the formation of synovial villi. There is very early penetration of vessels and in some joints these are particularly abundant (in the knee of the embryo measuring 4 mm).

mentioned

11. The development of the articulations in general must be considered as due to phylogenetic phenomena in the very early stages of differentiation. In the successive stages it is due to mechanical phenomena and the function of the intimately connected muscular apparatus. W. A. BARNES.

Mendi F. and Palagysy J. The Bone Deformation of Football Players (Ueber die Bruchdeformationen der Fußballspieler). *Dtsche Ztsch f Chir* 91: 376.

affected or only one. The tibiae were attacked most frequently. The use of the external border of

Beck, H. Regeneration in Osseous Fracture (Regeneration bei Knochenfracturen). *Zsch f Klin Chir* 92: 771, 745.

Beck differentiates three varieties of bone se-

are viable within the phalanx. These resorptive processes soon separate the greater part of the

from that of the base.

The defects arising from cortical sequestra are usually small and of little or no consequence as

for this is that not only the periosteum (as in Types 1 and 2) but also the marrow has been partially conserved and the marrow cavity opened. In palms of the bone therefore there is regeneration of the phalanx only if periosteum and marrow are conserved. If none of the marrow remains or if the bone-marrow cavity is not open, regeneration is

frequent cause of merely defective regeneration is suppuration proceeding from the bone and on this we can exert no direct influence. Ochsall (2).

Satta, F. Septic Gangrenous Osteomyelitis Due to Bacillus Coli (Osteomyelitis purulenta gangrenosa da bacterium coli). *Chir d organo di stomacolo*, 9: 2, 4, 93.

11. post mortem cultures were obtained were 48 cases staphylococcus, 203 cases streptococcus, 48 cases pneumococcus, 6 cases strept pneumo-staphylococcus, 0 cases bacillus coli, 1 case and bacillus typhosus, 1 case.

In a case of acute and apparently primary osteomyelitis described by Satta the pathogenic agent isolated in pure culture belonged to the group of common bacillus coli. The acute septic, gangrenous osteomyelitis in this case was analogous to that caused by anaerobic bacteria. These anaerobic suppurations of bone are well known but a septic osteomyelitis due to aerobic organisms has never been reported previously. The author's case is

structure of the tumor. The periosteal sarcoma with its radiating fine lines of calcium salts, is the most typical. A positive diagnosis should be made only by applying a tourniquet and removing a specimen for microscopic study. The roentgenogram

forty were females. The average age was 29 years, the oldest patient was a man of 69, the youngest a girl of 4.

In 55.2 per cent of cases the patients gave a history of injury. The importance of trauma is seen also in the age incidence and the location of the tumor on the parts most exposed to injury. Seventy-five per cent of the sarcomata occurred

growth with the tendency calcium, calcium and cauterization or amputation. Such treatment should be followed by treatment with radium, the roentgen ray and toxins. Amputation was performed in sixty-six of the 109 cases, excision and cauterization were done in nineteen, and local operations of various kinds in twenty-four. The advantages gained by an extensive operation do not overbalance the increase in operative mortality. An amputation, however, even in a hopeless case is preferable to the presence of a ulcerating foul tumor.

Sarcoma was 38 years

The most constant symptom was mild boring pain noted in fifty-five cases, and especially

Although synphibic lesions of other bones and

involved

Anti-syphibic treatment caused a decrease in the tumor and finally its complete disappearance but the shoulder joint remained in poor condition.

location, the size, and to a certain extent the

The authors have been able to find only eight cases of scapulo-humeral synphibis reported in the

McWilliams, C. A.: The Efficient Treatment of Compound Fractures. *Med Rec* 1922 91, 355.

The second variety of fractures consists of those in which there is a large wound of the soft parts and the latter are contused and dirty. In the proper treatment the patient is given first an injection of tetanus antitoxin. Under anesthesia the skin around the wound is shaved and cleansed with benzene alcohol, and a 3½ per cent solution of iodine the wound being protected with a pack during the procedure. The pack is then removed and all foreign particles are picked out of the depths.

After this is done the wound is flooded with ether followed by a 3½ per cent iodine solution, and the contused edges and fascia frayed-out edges of the tendons and pulped muscle are trimmed away. On exposure of the bone ends only entirely loose bone fragments are removed. The ends of the bones

are held together by chromic catgut sutures. Screws or metal plates should be used only exceptionally and these cases should be treated with Dakin solution. The screws or plates should be removed as early as possible.

Divided nerves are anastomosed with silk. Wounds of large compound fractures are treated by the Carrel-Dakin technique.

Car
fract
splinting the Thomas splint bent at the elbow being most applicable for fractures of the forearm in which any degree of traction may be obtained by twisting the Spizhul windlass attached to the fingers.

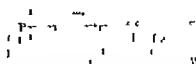
Bacterial counts are made at various intervals and secondary closure is effected, unless the hemolytic streptococcus is present when the bacterial count is not more than one in two or three fields in successive days.

The author recommends the Williams treatment of compound joint fractures, injuries, or infections in which active but never passive motion is employed. Debrided and dirty tissue and free particles of bone are removed, synovial membrane is cleaned, and the Carrel-Dakin technique employed.

The after-treatment consists in baking, early active and passive motion and general massage. Splints are removed as soon as practicable.

Reprints: S. R. RICE, M.D.

Electrolysis of the soft parts of the fracture



treatment is often successful. Instead of pastes (bismuth paraffin) which not infrequently cause retention of secretion, the author uses a 50 per cent solution of silver nitrate. If this treatment does not bring about a cure within a few weeks, operation is indicated.

Short fistulae causing only a small bone defect and surrounded by hard cicatrices often heal after a circular incision has been made in the healthy tissue around them according to Nussbaum's method. Canals of some length are excised and if possible

also may be used, but are not certain to heal in

Waring, H. J. and Milligan, E. T. C.: Non Union of Fractures. *Br J Surg* 9, 11, 408.

The authors call attention to the frequent occurrence of non-union in fractures and describe the treatment they have used. They consider the different long bones separately and give a short clinical history with the discussion of their treatment in ten cases. They divide cases of non-union into two classes: (1) those in which apposition obtains either primarily or following operative treatment.

fracture which most frequently gives rise to non-union is the transverse or slightly oblique fracture

the operative treatment. The treatment consists of preliminary operation to freshen up the ends

tions in the activity of the endocrine glands. His own view is that the condition is an inflammatory lesion of the upper end of the femur in which the changes are subchondral and due to definite infection of low-grade virulence conveyed by the blood stream.

As regards treatment he advises immobilization with protection from weight-bearing for about six months. While this will not interrupt the usual cycle of the disease it renders the final deformity of the femoral head less marked than in the average untreated case. Platt is opposed to surgical treatment.

similar to those in preadolescents are tarsal osteophytes and epiphysitis of the tibial tubercle.

J. R. FLYNN, M.D.

Rever, J. W.: Two Unusual Cases of Injury to the Tibial Tubercle. *Boston M & S J* 1921, division, 31.

The two cases reported illustrate the only types of injury to the tibial tubercle which may require operative treatment.

Case 1 was that of a tall, heavily muscled boy of 16 years who pulled the tibial tubercle loose in jumping. The fracture extended into the knee joint. The tubercle which projected at an angle of 40

function of the knee

the affected tubercle

The X-ray showed that part of the tubercle had been separated and was apparently adherent to

entirely recovered

necessary

JOHN W. FOWLER, M.D.

Feustle, P.: Anterior Painful Apophysitis of the Tibia (Apophysit douloureuse antérieure du tibia). *Presse Méd. Par* 9 2 1926, 170.

Traumatic lesions or partial fractures of the

the tibial tubercle

case and the X-ray seemed to show the presence of a partial fracture of the anterior tuberosity. X-ray examination of the left knee, however, revealed a condition exactly similar to that of the right. As the patient had never had trouble with his left knee as there had been neither lateral translocation nor

FRACTURES AND DISLOCATIONS

Chailin, C.: Fractures by Tearing Effects (Fractures du type de lachet). *Cher d'organe de médecine*, 922 VI, 2.

Chailin gives the resistance of various organic tissues to rupture expressing it in kilograms per square millimeter.

The resistance of bone compared with that of

traction of ligament it must be admitted that the resistance of the bone was decreased by some pathological condition.

Fractures of the coracoid process and the glenoid cavity, the great tuberosity of the humerus, the inferior epiphyses of the radius, the neck of the femur etc. which have been attributed to laceration

by a sudden effort

lesion or trauma

M. A. BERMAN

McWilliams, C. A.: The Efficient Treatment of Compound Fractures. *Med Rec* 922 0, 253.

flush with the skin and the fracture reduced. The puncture wound should be trimmed off and closed, possibly with a rubber drain.

The second variety of fractures consists of those in which there is a large wound of the soft parts and the latter are contused and dirty. In the proper treatment the patient is given first an injection of tetanus antitoxin. Under anesthesia the skin around the wound is shaved and cleansed with boric alcohol, and a 3½ per cent solution of iodine the wound being protected with a pack during the procedure. The pack is then removed and all foreign particles are picked out of the depths.

After this is done the wound is flooded with ether followed by a 3½ per cent iodine solution, and the contused edges and fascia frayed-out edges of the tendons, and palpated muscle are trimmed away. On exposure of the bone ends only entirely loose

sewage or metal plates should be used only exceptionally and these cases should be treated with Dakin solution. The screws or plates should be removed as early as possible.

Divided nerves are anastomosed with silk. Wounds of large compound fractures are treated by the Carrel-Dakin technique immediately being irrigated every two hours night and day. The

The proper elbow wear

in which any degree of traction may be obtained by tanning the Spanish windlass attached to the fingers.

Bacterial counts are made at various intervals and secondary closure is effected unless the hemolytic streptococcus is present. When the bacterial count is not more than one in two or three fields in 10,000,000 day.

The author recommends the Williams treatment of compound joint fractures, injuries or infections in which active but never passive motion is employed. Debrided and dirty tissue and free particles of bone are removed, vascular membrane is closed and the Carrel-Dakin technique employed.

The after treatment consists in making early active and passive motion, and general massage. Splints are removed as soon as practicable.

ROBERT S. REED, M.D.

Blackburn, W. T. ————

Besides sequestra and foreign bodies the cause of fistula is not infrequently of an anatomical nature particularly when the bone contains cavities of considerable size with small openings. When no sequestrum or foreign body is demonstrable conservative treatment is often successful. Instead of pastes (bismuth, paraffin) which not infrequently cause retention of secretion the author uses a 10 per cent solution of silver nitrate. If this treatment does not bring about a cure within a few weeks operation is indicated.

Short fistulae causing only a small bone defect and surrounded by hard cicatrices often heal after a circular incision has been made in the healthy tissue around them according to Nussbaum's method. Canals of some length are excised and, if possible the bone is cut down to a trough or the wound is tamponed by Bier's method for two days and then sealed over air tight with zinc paste. In a few cases cavities in the bone have been successfully filled

Warton, H. J., and Milligan, E. T. C. Non Union of Fractures. *Br J S* 1922 17, 408.

The authors call attention to the frequent occurrence of non union in fractures and describe the treatment they have used. They consider the different long bones separately and give a short clinical history with the discussion of their treatment in ten cases. They divide cases of non-union into two classes: (1) those in which apposition obtains either primarily or following operative treat-

fracture which most frequently gives rise to non-union is the transverse or slightly oblique fracture. If fracture is not

prevention of apposition by rigid parallel bones etc. The cases reported had had previous non-operative or operative treatment. The treatment consists of preliminary operation to freshen up the ends

Thomas, H. B. Congenital Dislocation of the Hip.
J. Am. M. Ass. 922, LXVIII 33

The author prefaces the report of his cases by outlining the history etiology and pathology of

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gives in the treatment of pseudarthroses of the neck of the femur is clearly inferior to that given by the

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place numbered five There were twenty-four patients under 6 years of age six of whom had bilateral dislocation Forty operations were performed Fifteen hips were reduced with a fair to good anatomical result and good function The results in nine hips were poor or questionable In six other cases the records are incomplete

DAVID TILLEY, M.D.

Giroda, C. Implantation of Dead Bone in Pseudarthroses and Fractures of the Neck of the Femur (*L'implantation d'os té dans les pseudarthroses et les fractures du col du fémur*) *Rev. de chir. Par.* 92, 28, 60

reported and several roentgenograms

W. A. BRENNER.

THE — — —

dupréot) *Rev. d'orthop.* 1932, XVII, 19

The two cases observed by Tillier were those of children aged 12 and 3 years The first case was a typical example of indirect detachment by ligamentous contraction the second, an example of direct detachment due to pressure upon or shock to the skeleton

In the first instance the roentgenogram showed detachment of the inferior tibial epiphysis and

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1908 has now been performed and thirteen of

was up to 450 kgm

Fifteen fractures of the neck of the femur were treated with dead or bone Nine of these were pseudarthroses three were less than two months

ately revealed a fracture of the fibula and a cuneiform fracture of the posterior and external part of the tibial diaphysis Reduction of the latter fracture was prevented by a detached piece of bone interposed between the fractured surfaces The detached bone was removed Reduction could be effected only by placing the foot in varus and internal rotation Subsequently the reduction so

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without fracture of the fibula but associated with an external cuneiform fracture of the diaphysis should be considered as due to a mechanism of abduction and external rotation direct or indirect, in the course of which the pressure of the astragalus plays an important part

plateau.

W. A. BRYAN.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Littlewood, IL: Amputations at the Shoulder and at the Hip. *Bull. M. J.* 1922 1, 321.

The operations described by the author for amputation at shoulder and hip are (1) Inter-scapulo-thoracic amputation, and (2) supra-trochanteric amputation of the femur as a substitute in some cases for amputation at the hip joint.

tuberculous

the posterior surface of the scapula being exposed

fully stretched, stand out and therefore are easily seen.

The cords of the brachial plexus are divided close to the spine with a pair of scissors. To lessen the shock an injection of cocaine in the nerve may be given before the division, but the author states that in his own three cases in which cocaine was not given, no increase of shock was apparent.

Clips are applied to the subclavian artery and the artery is divided between them. The vein is then treated in the same way. The advantage of secur-

quarter is removed. This exposes the thoracic boundaries of the axilla and the posterior triangle so that it is quite easy to enclose any lymphatic glands which require removal.

celosis

The patient is brought to the edge of the operating table resting on his sound side.

An antero-lateral flap is first cut beginning just below the antero-superior spine, coming down

made with fine skin and subcutaneous

secured by ligatures at each end

Moutier G: Operative Procedures for Reconstruction of the Thumb (Les procédés opératoires de restauration d'un pouce) *J d chir* 1933 319, 325

Injury During the great war the majority of cases were due to the premature or accidental explosion of

the dorsum of the forearm and hand. The scar and underlying cicatricial tissue were resected, exposing the interosseous membrane. The stumps of the extensor tendons were exposed at the wrist and slightly below it. The sheaths and tendons of the extensor carpi radialis longior and extensor carpi radialis brevis which were intact were utilized to function as extensors of the fingers. The extensor minimi digiti and the fourth division of the communis were attached to the third division of the communis and the latter was attached to the second division of the communis. The stump of

from a homogeneous or heterogeneous graft. In cases of partial destruction of the thumb, trans

implanted simultaneously or at successive opera

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Rokkiki, N. M. The Technique of Arthrodesis of the Knee Joint (Zur Technik der Arthrodesis des Kniegelenks) *Zeitschr f Chir u Gyn* 1931 5, 106

The methods used up to the present time for arthrodesis of the knee are:

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... .. proposed fixation of the knee joint by bringing the patella forward. By this method the joint is fixed anteriorly by a small bridge. According to the rules of mechanics, however fixation by a wedge in the flexor surface is much more effective. The author therefore transplants the patella in the following original manner:

The knee joint having been opened by a transverse

face of the tibia and femur is cut away. On the articular surface of the tibia a groove the width of the patella is chiseled out in a sagittal direction.

Merrill, W. J. Tendon Substitution to Restore the Function of the Extensor Muscles of the Fingers and Thumb. *J Am M Ass* 1933 10, 1704, 4, 5

The author reports a case in which extraordinary extension movement was restored to the fingers after severe traumatic injury of the muscles of the forearm. The patient was wounded on the dorsal surface of the forearm at the juncture of the middle and distal third. September 26, 1918. Debridement was followed by suppuration and a scar 4 in long by 1 in wide which extended up from the wrist on the dorsal surface of the forearm. The power to extend the fingers and thumb was entirely lost; they were therefore fixed in the hand. The flexor muscles were normal and there was no evidence of inflammation. The only extensor

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the groove from behind and acts as a firm wedge fixing the joint in its posterior part in full extension. The wound is securely closed and an immobilizing splint is kept on for six weeks.

complete success

CHANCE (2)

Krugloff A. N. The Operative Treatment of Gunshot Wounds of the Knee (Zur operativen Behandlung der Knieverwundungen). *Kashech. Voenichesk. Med. Rev.* 2: 921, 1924.

The author reviews the results of the treatment of

there was complete ankylosis and in seven amputation was necessary. The result in two cases is

was present in the joint, extensive arthrotomies were done and when injuries to the bone were found, resection was done immediately. Of the cases treated by simple arthrotomy (without resection

bone injuries), three were fatal and thirteen were cured. One death resulted from pneumonia and

during the later weeks, three were fatal and two were cured by resection. All of the fifteen cases of

abduction and outward rotation. At the end of 1 to 3 weeks, when the severe infection had subsided, the leg was extended. After sufficient resection for septic wounds of the knee the bone stumps were pulled far apart and the gaping wound was tamponed. In time the bones became approximated spontaneously and later a slight corrective operation was sufficient to obtain bony ankylosis.

those of persons in poor general condition, a primary amputation is best. L. HARRIS, M. D.

SURGERY OF THE SPINAL COLUMN AND CORD

Bradfield E. W. C. Fracture of the Atlas and Axis Vertebrae. *Indian M. Gaz.* 9: 114, 1924.

Fracture of the atlas and axis in which the injury is not fatal is rather uncommon, although several cases have been reported in the literature. The

who,
fatal,
lateral
was

followed by severe pain for ten days and permanent stiffness of the neck. There was only a slight lateral movement of the head, toward the right only.

Flexion and extension were limited. A hard bony mass could be felt to the left of the midline just under the occiput and continuing downward. There was no tenderness. The knee jerks were slightly exaggerated. The plantar response was extensor in character. No other nerve symptoms were noted. The X-ray showed the axis vertebra to be dislocated backward. The atlas was fractured. W. CARRUTHERS, M. D.

Giraldo, L. Reflex Spasticity Due to a Mobile Kidney (Espasmo reflejo de riñón móvil). *Reforma* and 19: 107, 1924, 98.

Bender in 1903, was the first to describe reflex deviation of the spinal column associated with a

recovery has occurred.

rate transitory inflammation sufficed in this pre-

lateral curvature of the lumbar vertebral column—reflex lumbar scoliosis—in which anatomopathologic deformity of the skeleton is usually absent and therefore there is no fixation. In such cases a cure may be obtained by nephropexy even after a long period.

2. One type of reflex lumbar scoliosis due to mobile kidney is the "homologous and homolateral scoliosis" with the convexity toward the side of the affected kidney. This is due probably to a reflex posture of defence against the pain to decrease the space in which the pained organ is able to move and the traction and pressure caused by it or the result of a spastic irritative state of the lumbar-lumbar muscles of the same side due to a reflex action exerted upon them by the traction and pressure of the pained kidney.

3. Another type of reflex lumbar scoliosis due to mobile kidney is the "heterologous or crossed scoliosis" with its convexity opposed to the side of the affected kidney in which the convexity of the lumbar column toward the side of the affection provides greater support for the kidney and restricts the renal niche. Or there may be paresis of the muscles on the affected side due to inactivity or simple contraction of the antagonistic muscles of the normal side, the column becoming curved without spasticity.

3. In cases of reflex scoliosis due to mobile kidney the proper treatment is nephropexy.

W. A. BRANNAN

Festelaki, P. Hysterical Pseudo-Pott's Disease. Remarks on the Diagnosis of Pott's Disease (Pseudo-mal de Pott hysterique: quelques remarques sur le diagnostic du mal de Pott). *Rev d'orthop.* 9, 1911, 32.

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The author examined the patient and showed slight clearly defined antero-posterior projection of the vertebral column in the dorsolumbar region (twelfth dorsal, first and second lumbar vertebrae). Palpation and pressure were painful. The spine was very freely movable, however, and its movement was painless. Roentgenograms did not show any osseous or ritically lesion of the column. In spite of these findings a diagnosis of Pott's disease was made on

a few cases simulating Pott's disease in all of which the latter could be ruled out by the absence of contraction and stiffness.

W. A. BRANNAN

Leri, A.: The Fifth Lumbar Vertebra and Its Variations (La 5^e vertebre lombaire et ses variations). *Presse med. Par.* 1922, xxx, 158.

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the sacrolumbar roentgenograms of 100 patients, eliminating those in which an error was apt to arise from obliquity of the X-rays. In 53 per cent the

entire 100 cases there were only twenty-three in which the form of the transverse processes corresponded to the type which is described in the text books as normal. The X-ray therefore shows that sacralization is so frequent that it can scarcely be called an abnormality.

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obscure origin. This does not mean that sacralization is never painful. There have been cases in which pain was relieved by the operative removal of a hypertrophied transverse process, but the complete or relative failure of the majority of such operations is too frequent to justify general adoption of the term "painful sacralization."

Ossification of the tho-lumbar and sacro-lumbar ligaments which has been regarded by many authors as the most clearly demonstrated cause of sacralization. Leri believes causes only a pseudo-sacralization of rheumatismal origin. This condition is painful and the pains are more or less hereditary.

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lith lumbar vertebra and its varying degree of obliquity. These may cause a diminution in the lumbo-sacral space due to a transverse increase of the vertebra or to its obliquity in relation to the sacrum. In either case the appearance of sacralization results.

is a suggestion of a congenital anomaly. It is possible, however, that the influenzal infection may have had a temporary localization there. At any

5 Variation of the position of the fifth lumbar
 vertebra in relation to the sacrum. When the

W. A. BRYMAN

Work, P: Multiple Diverse Tumors Affecting the
 Spinal Cord. *Colorado Med* 1925, xiv, 90

Not rarely cases of new growths of multiple distri-

the lateral aspect of the cord was found only slightly compressed.

The pathologic report by Ophuls showed the first specimen to be a fibroma and the second a cyst wall with calcification which was claimed as an ependymoma.

CARL R. STROHMEYER, M.D.

Parker H. L. The Diagnosis of Tumors of the Cauda Equina, Conus, and Ependymas Medullaris: A Report of Nine Cases. *Am J M Sc* 1925, cxviii, 343.

After reporting the clinical and operative findings in eight cases of tumors of the cauda equina and conus medullaris the author discusses the diagnostic points they presented.

Slowly growing tumors were characterized by long course and clear-cut signs. The greater the

situated at the highest level of interference with conduction.

The patient was a woman 60 years of age. Her family history was negative. When 30 years old

as a steady constant, burning pain (the character of the pain was not mentioned).

tumor necessitates close observation of the case.

A test should always be made for local tenderness of the spine. One of the author's patients had rigidity of the lumbar spine. In seven cases there was weakness of the lower extremities (slight in one, complete in two). Muscular weakness, always

B. LAMMIE

Sensory changes varied from a slight loss of which the patient was unaware to complete anesthesia of the lower extremities. A history of sensory changes had less value than other subjective complaints. There may be hyperesthesia, numbness, tingling, a sensation of cold or anesthesia. The degree of sensory loss was fairly proportionate to motor weakness but not to the size of the tumor or the extent of involvement of the surrounding structures.

The Achilles tendon reflex was absent or diminished. The patellar reflex was gone in all but one case. Occasionally the cutaneous reflexes were disturbed.

A "dry" spinal puncture when done by an expert, should arouse the suspicion of tumor. Edema of the lower extremities was present in one case.

Is the differential diagnosis consideration most

incontinence, and saddle anesthesia, sacral tuberculous, a pelvic tumor pressing upon and destroying the roots of the lumbar or sacral segments after emerging from the sacral foramina. And destruction of the sympathetic ganglia and plexus. Intense constant pain rules out a degenerative process such as spina lufida occulta, lipoma of the sacrum or

such so-called myelodysplasia with symptoms of enuresis sensory disturbances and weakness of the lower limbs.

The article is summarized as follows:

1 Tumors of the cauda equina, conus and epiconas are not rare. Of thirty three patients with spinal cord tumors operated on since 1916 eight had tumors in one of these areas.

2 The course of the disease up to the time of operation was relatively long, the longest being eight years and the shortest five months.

3 The condition is characterized by pain, weakness of the lower extremities, perianal or saddle anesthesia, and loss of control of the bladder and rectum.

4 Pain may precede other signs by many months at first it is intermittent, but later becomes constant. Movement usually relieves it and the

to exclude other diseases) and may suggest also the

is a quality impossible or extremely difficult and a surprising degree of involvement may often be present with few signs and symptoms. WALTER C BULLITT M.D.

SURGERY OF THE NERVOUS SYSTEM

Adson, A. W. The Gross Pathology of Brachial Plexus Injuries. *Surg. Gynec. & Obst.* 9, 1914, 35.

Of fifty-six to traumatic injuries of various types, such as direct blow causing fracture dislocations, forcible separation of the head and shoulder belt injuries, severe torsion of the brachial plexus, and gunshot and stab wounds. The paralysis varied from a slight disturbance of one root to complete paralysis of the

same throughout. In the first group the average return of function was 37 per cent, in the second group 56 per cent, and in the third group 65 per cent.

The fifty-six patients with traumatic injuries of the brachial plexus were studied according to the

Recovery occurs in some nerve trunks, while others remain impaired.

patients in this group showed signs of recovery apparently contra-indicating exploration. Four failed to obtain return of function and twenty-six

was surgical treatment instituted. The etiological factors were practically the

the lateral aspect of the cord was found only slightly compressed.

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Work, P.: Multiple Diverse Tumors Affecting the Spinal Cord. *Colorado Med.* 1922 xlv, 30

Partur, H. L.: The Diagnosis of Tumors of the Cauda Equina, Conus, and Epiconus Medullaris: A Report of Nine Cases. *Am. J. M. Sc.* 1922, clviii, 343

After reporting the clinical and operative findings in eight cases of tumors of the cauda equina and conus medullaris the author discusses the diagnostic points they presented

conduction

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of the sixth thoracic segment was removed by McKimble

The patient did not improve and symptoms practically similar to those previously present on the left side developed on the right side. She was therefore

— H. M. Kim

long history of local pain, even without signs of tumor necessitates close observation of the case

A test should always be made for local tenderness of the spine. One of the author's patients had rigidity of the lumbar spine. In seven cases there was weakness of the lower extremities (slight in

tumor or its location

Next to pain, sphincter disturbances were the — — — — — In five there was

Sensory changes varied from a slight loss, of which the patient was unaware to complete anesthesia of the lower extremities. A history of sensory changes had less value than other subjective complaints. There may be hyperesthesia, numbness, tingling, a sensation of cold or anesthesia. The degree of sensory loss was fairly proportionate to motor weakness but not to the size of the tumor or the extent of involvement of the surrounding structures.

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3. The condition is characterized by pain, weakness of the lower extremities, peri-anal or saddle anesthesia, and loss of control of the bladder and rectum.

4. Pain may precede other signs by many months, at first it is intermittent, but later becomes constant. Movement usually relieves it and the

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and symptoms

WALTER C. BURNETT, M.D.

SURGERY OF THE NERVOUS SYSTEM

Adson, A. W. The Gross Pathology of Brachial Plexus Injuries. *Surg. Clin. N. Am.* 9: 35.

The author reports the results of a study of 101 patients with injuries of the brachial plexus treated in the Mayo Clinic from January 1910 to March, 1914. In forty-five cases the injury was due to

tear of the brachial plexus and gunshot and stab wounds. The paralysis varied from a slight disturbance of one root to complete paralysis of the

same throughout. In the first group the average return of function was 37 per cent, in the second group 56 per cent and in the third group 65 per cent.

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Twelve on 1 and Thirt

patients in this group showed signs of recovery

Recovery occurs in some nerve trunks while others remain impaired

2 Variation of the position of the fifth lumbar
 Work, P.: Multiple Diverse Tumors Affecting the
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Not rarely cases of new growths of multiple distri-
 bution are reported, but a review of the literature
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 not of identical histology.

The author reports a case of extramedullary

the lateral aspect of the cord was found only slightly
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 CASE R. STEVEN, M.D.

Parker, H. L.: The Diagnosis of Tumors of the
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involvement may often be present with few signs and symptoms. WALTER C. BOWLER, M.D.

SURGERY OF THE NERVOUS SYSTEM

Adams, A. W. The Gross Pathology of Brachial Plexus Injuries. Surg. Gyn. & Obs. 93, 1911, 35.

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CARL R. STERNBERG, M.D.

Work, P.: Multiple Diverse Tumors Affecting the
Spiral Cord. *Colored Med* 1932 xix 30

Parker H. L.: The Diagnosis of Tumors of the
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1932, vol 34

After reporting the clinical and operative findings
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had no other symptoms)

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of the sixth thoracic segment was removed by
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ALAN C. HURLEY, M.D.

SURGERY OF THE NERVOUS SYSTEM

Adson, A. W. The Gross Pathology of Brachial Plexus Injuries. *Surg. Gynec. & Obst.* 9, no. 35.

The author reports the results of a study of 101 patients with injuries of the brachial plexus treated in the Mayo Clinic from January, 1909, to March, 1910. In forty-five cases the injury was due to

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recovery occurs in some nerve trunks while others remain impaired.

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gunshot and stab wounds in which the injury simulates that of the ordinary peripheral nerve injury.

The treatment depends on the cause and degree of the injury. No one method medical, neurological, or orthopedic, should be used for all brachial plexus injuries.

Since many of the injuries are slight and a fair degree of recovery follows massage and exercise, surgical treatment should not be instituted too hastily.

It is evident that surgery will offer little in the way of cure of brachial plexus injuries as experimental results show that the lacerations are elongated tears which in most instances, provided the ganglion has not been involved, are situated within 3 cm. of the intervertebral canal.

Gunshot and stab wounds of the brachial plexus should be treated in the same manner as wounds of peripheral nerves in other parts of the body. Associated dislocations or fractures must not be neglected.

Adson, A. The Treatment of Brachial Plexus Injuries. *Western Med.* 912, 22, 33.

Injuries of the brachial plexus vary in severity from a slight disturbance to complete paralysis of one or more roots, the result of effusion of blood and synovial fluid, shoulder dislocation, fractures, gunshot and stab wounds, stretching of nerves, lacerations.

constricted nerves and in bringing an end to end anastomosis of the severed fibers.

Gunshot and stab wounds of the brachial plexus should be treated in the same manner as peripheral nerve wounds in other parts of the body. Associated dislocations or fractures should not be neglected.

JL A. McKEOWN, M.D.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Matthias, M. Malignant Granuloma (Ueber das maligne Granulom). *Munchen und B. Woch.* 1921 1710 1736.

Ornithomias belong, with the Symptomatica and the true pseudo-leukemias, to that group of

enlargement, the differentiation from typhoid fever is difficult. A negative tuberculin test is of importance. Palms in the bones resemble those of leukemia.

Rosenbroch, F., and Lebeche, M. The Treatment of Malignant Tumors (Die Behandlung der bösartigen Geschwülste). *Deutsche med. Woch.* 1922 4708 83.

Early diagnosis, early operation, and the patient's reaction to carcinoma are the factors of chief importance with regard to permanent results of treatment. The modern conception of carcinoma of the breast should be more accentuated.

marked leucocytosis. In the course of the disease, quite characteristic, irregular periods of fever alternating with afebrile periods. During the fever the patient feels very ill, the glands become more swollen, and the leucocytosis is more marked.

Prurigo and eczematous skin rashes may be observed as early symptoms. The strobiliform and

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denied, but in malignant surgical tumors the conditions are more complicated. The malignancy of a tumor cannot always be recognized in a clinical-surgical sense from its reaction to roentgenotherapy and it is assumed also that the various parts of the

organ and the patient's age and general condition are of decisive importance in the selection of treatment and the prognosis.

radiation. It must not be forgotten that many tumors have a marked tendency to retrogress

certain. Operable carcinomata of the lipa should be operated upon also those of the mucosa of the cheek, the pharyngeal wall, the palate, the tonsils

should always be operated upon as they grow increasingly after radiation. Only mammary carcinomata which are inoperable should be treated by radiation, all those which are operable should be treated surgically without exception.

The question of radiation after operation is still undecided. The radiation of carcinomata of the digestive organs results in transient improvement and occasionally in retrogression of the tumors but not in cure. Early diagnosis and operation increase the possibility of cure and therefore only truly inoperable cases should be irradiated. The same applies to rectal carcinomata. postoperative irradiation increases the danger of recurrence but decreases the pain and the necrosis. In cases of tumors of the kidney, adrenal, pancreas, bladder and prostate, operation gives better results than radiation. The results of roentgenotherapy in sarcomata of the mesothorax and the base of the skull are

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toms
in union.

The early radical operation is still the main weapon against cancer although the wonderful

BLOOD

Sindelar T: *Surgery of the Blood*. *Bull. U. S.* 1915, 375.

The author outlines the principal indications for surgical measures and the simplest technique used in the treatment of diseases of the blood and blood-forming organs.

To prepare hemophiliacs for operation he endorses the use of calcium hemoplastic serum, repeated small transfusions of homologous blood at short intervals or the daily subcutaneous injection of 40 c cm. of any mammalian blood or human blood.

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It seems
doubtful whether the results claimed by the Mayo Clinic for splenectomy entitle us to urge the operation with any degree of conviction.

In hemorrhage the two important indications are the restoration of the blood pressure by the copious administration or transfusion of fluids and the maintenance of the warmth of the body by internal

in the use of the paraffin-lined Hampton Brown tube.

Embolism is more frequent after operations than following infections of wounds. The mechanism of thrombotic and embolic formation is discussed. Electrical ionization over the areas of thrombosis appears to be efficacious.

In true polycythemia surgery directed to the spleen is contraindicated. For the present, the best treatment appears to be the application of radium to the long bones or possibly deep X-ray therapy.

In Banti's disease there is an indication for early splenectomy performed before curvatures changes in the liver become

in its stages a field for operative surgery. The spleen need not be extirpated but the removal of clusters of glands which are large, discrete and not adherent is definitely beneficial. The results from the radium treatment of this disease are very encouraging.

A number of conditions are mentioned briefly. The author has not seen the occurrence of tonsillar atresia following tonsillectomy. Splenectomy has a high curative value in hemolytic jaundice. In purpura hemorrhagica it may prove curative. A failure in skin grafting may be due to the fact that the bloods were not homologous. Phlebotomy is useful in congestion of the lungs in immersion cases,

and sometimes in pneumonia, apoplexy, high temperature, imminent uraemia and polycythemia vera.

The production of an artificial leucocytosis by injections of nucleic acid or sodium cinnamate has been advocated.

J D Linn, M D

BLOOD AND LYMPH VESSELS

Reverut, P: The Technique of Intravenous Syringe Injections (Technique des injections intraveineuses à la seringue). *Presse med. Par* 9 2, 333 347

The technique described is applicable especially to the injection of mineral salts. The points emphasized are as follows:

1. It is best for the patient to be fasting but this is not absolutely necessary.
2. The injection may be made into any vein. Those in the elbows are the most suitable especially

the part appears logical.

As it is usually the foot that suffers in cases of

water or xylo.

4. When the veins are swollen, select that one

5. Disinfect the area of injection with alcohol or sodium

6. The solution to be injected should be prepared

The greater the dosage the slower the injection should be in order to allow the drug to become diluted in the blood. It is well to inject about one

entirely painless.

If any part of the injection penetrates the cellular tissue pain and redness will be present immediately and oedema after a time. Such complications may be avoided by making a small incision immediately after the puncture and currying.

In the nursing the external jugular vein the cephalic vein (which are often voluminous in infants with congenital syphilis) and the dorsal veins of the foot may be used.

W A BRENNAN

spontaneous gangrene the pain disappears after — c

ticulum of the aorta, and thereby increases the pressure within it. Accordingly it should not be done when proximal ligation is possible.

3 The presence of the aneurism necessitates removal of a part of the sternum in order to gain a free and clear exposure of the vessels below the aneurism.

Glück, T. Arteriotomy (Ueber Arteriotomie) *Monatsh. med. Naturh.* 1922, lxx, 53.

Arteriotomy was practiced in antiquity but was later forgotten and mentioned only rarely in the textbooks of surgery. Glück and Haginsky recom-

Beckerle, G.: A Case of Suture of the Common

radial artery was a life-saving measure in cases of pneumonia and pulmonary edema in which venesection was of no value because of paralysis of cardiac activity.

On the basis of his own experience the author

In the case reported the fragment of the hand-grenade causing the injury remained in the vessel wall and acted as a tampon until it was displaced by movement of the patient or some other mechanical force. It was only at this later stage after its displacement that the endovascular pressure caused hemorrhage by overcoming the weak resistance of the remaining tissues.

The patient was in a condition of acute anemia from loss of blood and his pulse was almost imperceptible. Temporary pressure hemostasis of the vessel was obtained without excessive injury to the vascular tunics. When the hemorrhage had been considerably diminished the tract of the external wound was opened up. The fragment of projectile was discovered fixed in the common carotid about 155 cm. from its bifurcation. A Kocher for cep. was placed over the bifurcation, the perivascular coagulum removed, and the arterial perfora-

been withdrawn a circular or a lateral ligature is applied. *Snare (2)*

Galst. *Proc. Am.*

In a case of aneurism of the arch of the aorta with severe clinical symptoms Finkle performed

only in cases of extreme compression symptoms and where the sac of the aneurism is so situated that it will not be injured by the operation. *Pierce (4)*

Balme, C. Ligation of the Innominate Artery for Innominate Aneurism. *Ann. J. Surg.* 9, 1, 418.

The author lays particular stress upon the following points:

1 Cases found to be subjected to operation should not be previously treated by the method of ligation.

2 There is a group of cases of aneurism of the innominate artery (aneurism of the bifurcation) which are suitable for proximal ligation. Distal ligation causes the aneurism to become a danger

perfect approximation of the endothelial surfaces gives the best results. *W. A. BRANTY*

SURGICAL DIAGNOSIS, PATHOLOGY AND THERAPEUTICS

Brenneman, J. The Clinical Significance of Abdominal Pain in Children. *Surg. Gynec. & Obst.* 9, xxiv, 344.

Certain abdominal conditions —
gastroenteritis
which are of childhood
same character
occurring predominantly in infancy and early childhood is nearly always caused by obstruction in a hollow

peristaltic waves. Other pains which manifest themselves differently in adults are more difficult to diagnose. The author confines himself to the last two groups.

to recognize as spinal rigidity and tenderness are present before the pain develops.

In appendicitis in children pain is always a symptom, and probably always the first, but may be slight. In the author's experience it is quite rare in young infants, and in older children does not differ greatly from that of appendicitis in the adult except that it is not as marked.

WILLIAM J. POKETT, M.D.

Kotzareff, A.: Burns and Their Treatment. An

to diagnose

due to volvulus or a band of adhesions is a much rarer condition in infancy.

Abdominal pain may be caused by an unusually tight anal sphincter. The author cites two cases

peritonitis, and (1) pain associated with throat infections. The diagnosis of the first as a rule offers no difficulty since the pain follows the ingestion of such foods as unripe fruits, cucumbers, and peanuts. The pain associated with peritonitis is

or the formation of thromboses may be prevented by ligation of the vessels of the portal artery.

The time pain by the blood capillaries or

is seen in lung sections of guinea pigs or men dying within twenty-four hours of the accident. The rapid intoxication does not give the organism time to react.

Pain immunization by vaccination or auto-immunization by the injection of blood or serum of an untreated animal increases the chances of

toxic shock may be saved if there is time.

Abdominal pain due to pressure on the posterior nerve roots in tuberculous spondylitis is not difficult

toxic shock

In spite of the injection of serum the general treatment of burns by the subcutaneous injection of physiological serum or the withdrawal of small quantities of blood to diminish the toxemia and the administration of heart stimulants is indicated. It must not be forgotten moreover that burns cause a disturbance in the equilibrium of the blood. This early disturbance which is characteristic of toxic shock, favors the rapid development of infective complications. Therefore as soon as the serum injection is made the possibility of rapid and early infection should be guarded against. W. A. BURN.

EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Walshard, "The
on the
(Ueber
Prostate
J. urol. Chir. 9, via, 87

Having observed that following the removal of

Microscopic examination in the cases of animals castrated on both sides showed fusion of the glandular epithelium of the prostate into irregular dis-

It is

350

The object of this series of experiments was to develop an end-to-end suture of the intestine more nearly aseptic than had yet been devised. The first

and castration of the testis developed. One while proved to be better than three or four because less force was necessary to cut the ligatures or perforate the diaphragm and one of three or four knives might enter the mucosa of the intestine.

The method is essentially as follows: (1) ligation

the glandular portions and later the fibromuscular tissue. As regards the influence of castration in older people opinions vary widely especially with regard to the lateral castration. Walsh has a definite knowledge as to the effect of interruption of the per-

take into account (1) shrinkage due to disturbance of innervation (anastomosis between the prostatic and deferential pleura) (2) the source of the internal secretion of the testis following bilateral

the preexisting sutures are to be cut (a short rubber tube being placed in the sphincter and rectum to facilitate its introduction and protect the sphincter, and the knife point being pro-

manipulation through the testis wall (10) operator grasps the metal tube close to the shank of the blade and aims for the center of the diaphragm hoping to cut both purse strings (two or three thrusts are made) (11) a precautionary measure a tapered bougie is passed through the diaphragm before closure of the wound.

By this method forty-seven dogs were operated on without a fatality or symptoms of abnormal convalescence. The bowel resected in every instance

was the colon. No previous series of experiments in intestinal suturing at Halsted's laboratory had been run on more than twenty-three dogs without a death. This is therefore the longest series he knows of, there or elsewhere.

the stitches come to the peritoneal surface, and only those which penetrate the mucosa slough to the inside of the gut.

The original paper of Lembert shows that his stitches were cast off into the bowel, and he makes no mention of ever having seen at autopsy a loop of thread shimmering under the peritoneum. He

blood volume, an actual decrease in the amount of blood in the body.

decrease in the capacity of the circulatory system. Such a decrease in capacity is effected by increased action of the vasoconstrictor center causing greater contraction of the peripheral vessels. When the blood pressure begins to fall there may be also passive contraction of these vessels because they are no longer distended by the internal pressure which normally prevails. With the further development of shock there is a fall of arterial pressure below the limits of normal variation due to a reduction of the blood volume below the normal capacity.

Now a decrease in the blood pressure results in decrease in the blood supply to peripheral tissues and central organs. All parts of the body may then begin to suffer from disturbances of the circulation initiated by the decrease in the volume of blood.

reserve

If uniform artificial respiration is given to an animal while it is passing into the state of shock, no diminution of the carbon dioxide capacity of the plasma occurs until the blood pressure falls. The concomitant fall of blood pressure and reserve

EXPERIMENTAL DETERMINATION OF THE CRITICAL LEVEL

In order to produce experimental conditions which are similar to those of combat, authors record the volume changes of the heart during artificial

(U. S. PUBL. 1922, 21)

Gannan, W. B., and Cattell, M. Studies in Experimental Traumatic Shock. The Critical Level in a Falling Blood Pressure. Arch Surg 1922 iv 300

The low blood pressure in both experimental and clinical shock is explained by a diminution of

respiration, the thorax was opened between the

level. In a few cases there was recovery after several hours.

The alkali reduction produced by an inadequate circulation was not permanent, but rapidly disappeared when the blood pressure was allowed to return to normal. In a number of other instances the blood pressure was raised and the alkali reserve

produced and maintained. In a few experiments the arterial pressure was regulated by compression of the heart by means of a clamp applied to the chest. This method gave similar results but was inferior in that it interfered with the respiratory movements.

conditions of the experiments it had no effect on the alkali reserve. A cannula having been placed in the pericardium to control the arterial pressure as described, the blood pressure was recorded by a mercury manometer connected with one carotid artery. A second cannula was placed in the other carotid artery or in the femoral artery to obtain samples for the bicarbonate determinations. For

repeatedly to hold the arterial pressure constant but usually an equilibrium was reached.

satisfactorily constant relation was found between the degree of reduction of the alkali reserve and the lowering of the blood pressure. The most marked reduction was found at low pressures whereas above 80 mm of mercury the state of the blood remained unchanged. Thus

the alkali reserve is a much lower figure than that found in normal human plasma in which a reading below 50 is generally considered pathologic. The most rapid fall in the alkali reserve occurred during the first hour of reduced pressure after which it soon reached a stationary low

approximately 80 mm of mercury. If there has been a loss of blood the circulation becomes inadequate before the pressure falls to 80 mm of mercury; i.e. the critical level is raised.

EFFECT OF MORPHINE

Morphine lowers the systolic pressure by 10 to 20 mm.

It is found that by lowering the activity of the vasomotor center, the blood pressure is lowered.

there is an acute lack of oxygen, nerve cells abruptly cease to function. The loss of consciousness in fainting is a common example of the close dependence of nerve cells on oxygen.

Instead of acute anemia, there is prolonged partial anemia.

The gradually damaging effect of persistent low blood pressure is of the utmost importance in both the understanding and the treatment of shock. When the vasomotor center has lost its capacity to maintain vascular tone there is no remedial agent which can be applied to bring the blood flow back to normal.

When this stage has

— as low as neg. of neg. of commitment

blood volume, an actual decrease in the amount of

these stitches there has been an infected abscess from the time of placement to the time of release. Habited is convinced that in cases which heal most ideally the stitches come to the peritoneal surface, and only those which penetrate the mucosa slough to the inside of the gut.

The original paper of Lambert shows that his stitches were cast off into the bowel, and he makes

furnly in contact. Every perforating stitch is a
message to the circulation. In the dog one row of

decrease in the capacity of the circulatory system. Such a decrease in capacity is effected by increased action of the vasoconstrictor center causing greater contraction of the peripheral vessels. When the blood pressure begins to fall there may be also passive contraction of these vessels because they are no longer distended by the internal pressure which normally prevails. With the further development of shock there is a fall of arterial pressure below the limits of normal variation due to a reduction of the blood volume below the minimal capacity

If uniform artificial respiration is given to an

direction of acid or overheating due to oxygen want—the decrease is an indication of funda-

EXPERIMENTAL DETERMINATION OF THE CRITICAL LEVEL.

Cameron, W. B., and Cattell, M. Studies in Experimental Traumatic Shock. The Critical Level in a Falling Blood Pressure. *Arch Surg* 1932, 90.

The low blood pressure in both experimental and clinical shock is explained by a diminution of

have made use of an arrangement to avoid the
injurious changes of the heart. Under artificial

arguments for and against the procedure and its possible ill results are discussed at length. The impression is given that if it is skillfully used these dangers are not serious.

In 350 cases examined the intra-uterine route was preferred. When the attempt to inflate by this

This position is especially good when the patient bends laterally in front or behind at about 45 degrees to the table.

3. Dorsal decubitus with a normal horizontal and latero-lateral ray.

The authors give the normal findings in these various positions and report nine cases of various conditions which show to what extent the pathologic X-ray findings in the positions referred to deviate from them. The cases include tuberculous peritonitis localized in the left hypochondrium, tumor of the left side of the transverse colon, polycystic kidney and gastric tumor.

W. A. BRIDGEMAN.

Hazen, H. A.: The Ultraviolet Ray in the Treatment of Roentgen Ray Telangiectasia. *Am. J. Roentgenol.* 97.

The well known effect of the ultraviolet lamp in producing an obliterating endarteritis led the author to the employment of the Kromayer lamp to clear

therapy has been tried telangiectatic

large areas covering the entire thyroid and thymus areas, and the remainder were mild scattered lesions due to one erythema dose given for acne.

With an active lamp using a quartz compression lens, it was found necessary to treat each area from fifteen to twenty minutes. In no instance were more than two treatments necessary to obliterate the dilated vessels completely. The atrophy of the skin was unchanged and usually a small, slightly whitened scar remained. *ANSELMO HERRERO, M.D.*

pregnancy is least difficult between the sixth and

supposed ectopic pregnancy as a normal pregnancy complicated by an extra-uterine condition. The demonstration of tuberculous salpingitis has been made twice when unsupported by clinical findings. The method has been especially satisfactory in its negative results in the cases of neurotic young women suffering from dysmenorrhea without palpatory findings. The pelvogram is singularly sensitive

In the course of an investigation on the biological effects of roentgen rays it was noted that while large doses of this agent destroyed lymphoid tissue very small exposures, after causing a slight amount of destruction, caused a stimulation of the tissue. The mechanism of the stimulation phenomenon is of considerable interest because of the relation of the lymphoid tissue to cancer resistance. The most satisfactory stimulation has been obtained with roentgen rays of comparatively long wave-lengths and of low penetrating power. It seemed extremely doubtful, therefore, whether these rays penetrated the deeper lymphoid organs in sufficient strength to bring about any change, yet these organs showed as much evidence of stimulation or destruction as those which were superficial enough to be acted upon by the rays.

exposure of a particular organ can be found.

Three positions of the patient are especially important in making a complete examination of the left hypochondrium under roentgen rays.

normal and ventro-dorsal or dorso-ventral ray

been reached, the secondary harm from insufficiency of oxygen has been too great to permit resuscitation.

The foregoing considerations emphasize the prime importance of the need for —

BY HENRY G. F. A. NEW YORK

figures

CARL R. STEINER

ROENTGENOLOGY AND RADIUM THERAPY

Storgren, J. D.: Stereodiuoscropy. *Am J Roent*
genol 29:2 125 12, 180

Two X-ray tubes with targets placed several inches apart are alternately excited. These short alternating flashes produce different images on the fluorescent screen corresponding to the difference in position of the tube targets. Because of the persistence of each image in the eye the result is a

creation of a continuous stereoscopic effect.

Various attempts have been made to perfect apparatuses

scribes

fine

hook,

yield results, but all of them had some objectionable feature which rendered impracticable their

which in many instances is distinctly to the right or the left of the median line. By this process

two specially made electromagnets, and only enough force is applied to overcome inertia and air friction. Two Coolidge tubes are used, both activated by

method, or even the demonstration that these various cells are normal, a great advance can be made in the study and treatment of the diseases of the posterior accessory sinuses.

By this method surprisingly great variations in

in a fully lighted room. (3) it can be used equally well in any position without losing synchronism.

the postero-anterior and the lateral views permits a very exact and definite demonstration of the sphenoidal sinuses in every plane and in every direction, and therefore furnishes the most exact information for the clinician. ALBERT HARRIS, M.D.

Van Zwakkenburg, J. G.: Pelvicography — Its Field and Its Limitations. *J Radiol* 1927
21, 74

In this article the term pelvicography is suggested to designate the X-ray examination of the pelvis by the pneumoperitoneum method. The

procedure which offers anything when more than

structures

ADOLPH HARTUNG, M D

Van Allen, H W. Hyperthyroidism Basal Metabolism, and Radiography. *J Rad* 922, 44, 85

Van Allen believes that the lesser symptoms of hyperthyroidism are often underestimated, that in such cases the basal metabolism test is of the greatest value and that, properly interpreted, the test is reliable negatively as well as positively. Laboratory tests are practical provided there is

moderate doses and even persons with extremely toxic hyperthyroidism have developed hypothyroidism following repeated massive doses. The question of successful treatment therefore is one of correct dosage.

The author's conclusions are summarized as follows:

The value of a given method of treatment is proportional to its effect in suppressing hypersecretion. The value of a given method of treatment in suppressing hypersecretion may be shown by following its effect on the metabolic rate. The favorable reports of hundreds of investigators show that the roentgen ray has a curative effect in hyperthyroidism. Its value depends just as does that of the surgical treatment of the same condition, upon the technique used and the previous experience and judgment of the operator. The most important

cannot be learned by the operator without the aid of some accurate measure of the results obtained in each case. The most accurate measure of results yet discovered is the metabolic rate.

DAVID R BOWEN, M D

Kahn, H. X Ray Studies of Mediastinal Shadows with Special Reference to Dermoid Cyst. *J Radiol* 93, 12, 93

Following a general consideration of mediastinal shadows, Kahn reports one case of dermoid cyst in the right chest of a female aged 4 years, which

or fifteen years a few cases have been treated again. None of the patients has myxodema and there have been no deaths. D. R. BOWEN, M D

Jones, H M. The Control of X Ray Therapy in Hyperthyroidism by the Basal Metabolism Test. *J Radiol* 9, 11, 85

Follows a personal case study.

Roentgenoscopic examination showed a large rounded tumor shadow occupying the lower two-thirds of the right chest. The growth was female.

Richards, G E. The Possibilities of Roentgen Ray Treatment in Cancer of the Pancreas. *Am J Roentgenol* 9, 11, 150

In a review of literature.

radical which form of treatment is the best to employ at the outset.

That the secretion of the thyroid gland may be diminished by X-ray treatment is no longer ques-

tioned than some other forms of carcinoma, particularly carcinoma of the gastro-intestinal tract. Cancer of the pancreas is comparatively rare but there is a discrepancy between the percentage of cases as reported by autopsy findings and in the living which suggests the need of greater

at hand indicating the indirect action of the roentgen rays on the lymphoid tissue, it seemed of interest to reopen the question and to determine whether or

regularity with which the lymphatic nodes are involved at some stage of carcinoma makes it imperative to radiate all the lymphatic system adjacent to a primary growth. In some cases the first chain of glands is not involved, but glands further distant may contain cancer cells. The aim of treatment in every case of carcinoma is to check cell

increase in number from 15 to 30 per cent, and mitotic figures are found among these cells in fairly large numbers. This occurs when the dosage is governed by the following factors: spark-gap 2.4 in milliamperes, 10 distance 12 in time fourteen minutes. When the time of exposure is increased

diagnoses extension of cancer cells of the primary infil-

There is no universal method of trying metastatic glands. Some therapists radiate large areas with

action

reaction

Lecture HARTONO M.D.

Bogdan, R. H. The Treatment of Glandular Metastases of Carcinoma. *Am J Roentgenol* 9

1916, 7

in the treatment of cancer metastases

many ports of entry and cross-irradiation as much as possible. The equation ordinarily employed was a

is obtained

carcinoma can be successfully treated, but there is no positive method by which extensive metastases can be eradicated or cured. Radiation is the only

GYNECOLOGY

UTERUS

Shaw H. N. The Results of the Interposition Operation for Prolapsed and Protruded of the Uterus. *Surg. Gynec. & Obst.* 1913 XXIV 394

to the technique of the interposition operation as done in this clinic, is the placing of three figure-of-8 sutures on the anterior wall of the uterus so that they first act as traction sutures and when tied, firmly anchor the uterus beneath the bladder and against the anterior plane of fascia.

Since 1900, 18 interposition operations have been done on the gynecological service of the Johns Hopkins Hospital. Of fifty-eight cases in

hospital. Two patients became pregnant after the operation.

The author admits that the indications for the interposition operation were not closely adhered to in their earlier operations hence the poor results obtained. Since 1905 however they have done forty interposition operations and in twenty-one of these cases which have been traced the result was satisfactory.

In conclusion Shaw says that the operation is limited to a small group of cases of women near or past the menopause in which abdominal or other extensive operative procedures are contra-indicated.

HARVEY B. MARRIOTT, M.D.

Phillips, J. Severe Uterine Hemorrhage After Vaginal Operations. *Lancet* 1910 CCII, 530

ALL CASES RECOVERED

ALL CASES RECOVERED AND TODAY ARE IN GOOD HEALTH

The author has never before observed a case of ballooning of the uterus as the result of a vaginal operation but has records of four cases of alarming hemorrhage from the uterus following minor operations on the vagina. C. H. DAVIS, M.D.

Brown, O. V.: Valuable Methods Used to Extend Operability in Advanced Cancer of the Cervix. *Am. J. Obst. & Gynec.* 1912 III, 263

The two methods which greatly extend the operability in advanced cancer of the uterus are: (1) the starvation ligature and (2) radiotherapy.

The normal cell has three periods of existence: growth, function, and regeneration for growth.

cell the stroma is not a part of the neoplasia but a measure of the organic defense. Therefore since the malignant cell is five times more vulnerable than the normal cell.

HOW TO METHOD NUMBER

EIGHT CASES

All of the patients have shown improvement locally. One died of sepsis. In one case in which ligation was done but heat was used after the uncompleted operation there was local and general improvement until radium was employed when there was an immediate extension of the growth.

thoroughness in examination to recognize the condition early.

Detailed histories of three cases are given. All have been proven, by every possible means, to be cancer of the pancreas. In both of the patients who are still living the condition was advanced so that the expectation of life was very short—probably not at the present expense.

It is obvious that to offer any reasonable prospect of cure and probably should not have been subjected to treatment. Other cases have since been treated with gratifying preliminary results, but have not been under observation for more than six months.

In every instance the results up to the present time are sufficiently encouraging to justify the following conclusions:

1. It is possible favorably to influence the growth of pancreatic cancer and thus to justify the

Radium emanation tubes embedded in the dose lymph sacs produced similar changes which were most pronounced about three days after the insertion. Frogs in which insertion

1
were
and

1
c
The lymphocyte is the most radio-sensitive cell in the animal organism. The change in the numerical relationship of the two types of white cells was not accompanied by a noticeable change in the total leucocyte count. Apparently the mechanism of the action of the rays on the leucocytes of the blood consist

1
2
3
Certain investigators

Lewis, I. The Action of Radium and the X Rays on the Blood and Blood-Forming Organs in *J. Neoplasia* 1914, 1, 11.

In a previous publication the author reported upon the action of roentgen rays on the

increase in leucocytes herein reported of radium those in which been induced. A similar rabbits.

Normal frogs treated with the roentgen rays forty five—
p-in sple
po-filial
relations
and lymph
phases and
ary. Th
hours after
because

on the same

Gelst, S. H.: A Contribution to the Histogenesis of Ovarian Tumors. *Am J Obst & Gynec* 1922, 16, 31

In one ovary of a woman 52 years of age was

cylindrical type such as are seen in the pseudo-mucinous type of ovarian cyst. Often in these cysts are found oval granular bodies which on

invasive tendency of an inflammatory infiltration Mitoses were absent

The cells composing the tumor resembled in their appearance and arrangement the granulosa cells, and the general structure of the growth in parts

cell type is found in the embryological rests de

development of the microcysts and later of the larger cysts which occur in the ovary. Further more the cells lining these cysts are often cuboidal and occasionally high cylindrical mucin-containing elements and can be traced by direct observation

origia or the fancied resemblance to some structure of the ovary. A

von Werdt described a group of tumors including several which were somewhat similar to the type under discussion as granulosa

cell tumors." Several of the terms, such as "ade

growths should be grouped as tumors arising from persistent embryonic structures

E. L. CORVILL, M.D.

Filatow, N.: A Rare Case of a Dermoid Cyst with Ball Formations (Ein seltener Fall einer Dermoid-cyste mit Kugelbildung). *Sborn rabot po zhensk* 1922, 1, 68

A very rare form of dermoid cyst is a type in which peculiar ball formations are found. Only one such case has been observed in the Obuchow Hospital during the last eight years. In this instance a tumor as large as a child's head was palpable. At operation a cyst having its origin in the right adnexa was removed. The patient made an

showed fat droplets

Rokitansky was the first to describe such ball formations in dermoid cysts. In 1912 Plens described eighteen cases. The balls are formed by saponification of the fat and mechanical action upon fat masses. SCHAECK (2)

Skrobanski, K.: Operative Treatment of Chronic Purulent Disease of the Adnexa (Die operati v Behandlung chronischer eitriger Adnexerkrankungen). *Sborn rabot po zhensk* 1922, 1, 44

The discussion is based upon 203 cases which formed a part of the author's first series of 500 laparotomies. Twenty-one cases were operated on for exclusively purulent disease of the adnexa. In twenty-nine cases the suppuration of the adnexa was associated with cysts of the ovaries. In thirty-two cases there was extra-uterine pregnancy with suppuration in the tube. In twenty-one cases suppuration of the adnexa and fibromyomata of the uterus were present.

In twenty-nine cases the adnexa and the uterus were removed. The uterus was removed entire in eleven cases, and in eight on supra-vaginal extirpation was done. The removal of the uterus with both tubes and one ovary was carried out six times. In the operations of this series are twenty-three cases in which all the adnexa were removed and the uterus was left. In the future the author will restrict this operation to exceptional cases, cases of non-gonorrheal nature and those of young women in whom he has attempted the transplantation of an ovary from another woman. Unilateral removal of suppurating adnexa was performed thirty-nine times in young women without gonorrheal infec

The purposes of this method are (1) to control the hemorrhage which causes a constant drain on the patient's vitality or is so severe or frequent as to warrant the fear that it may prove fatal (2) to favor the discharge of pus and necrotic tissue (3) to diminish the absorption of toxic products

The meat was markedly red and pointing On

ADRENAL AND PERI-UTERINE CONDITIONS

Rosenstein, M.: An Unusual Case of Ectopic Pregnancy. *J Am M Ass* 1922 LXV, 789

The patient, a woman aged 37 years, was admitted to the Lying-In Hospital February 24, 1922. Her last menstruation had occurred December 30, 1920. On the afternoon of the day of admission she had violent abdominal cramps and fainted twice. A

Woman came the same day. A partial autopsy revealed the small intestine

lower lobe of the right lung, and the fourth day after the operation parotitis developed. After seven or eight days both the pneumonia and parotitis began to subside, and ultimately they cleared up entirely

The presence of viable child was not

There is considerable disagreement as to whether ovarian cysts do or do not increase in size during pregnancy

In a case reported by the author that of a primipara in the eighth month of pregnancy who came to the hospital with a diagnosis of hydramnios, this diagnosis was confirmed by examination and expectant treatment was given. Labor occurred at term with the birth of a living child but the tumefaction of the abdomen was little decreased and the woman later entered the hospital again. About 4 liters of fluid were then withdrawn by

right ovary increased in size very rapidly

Gelet, S. H.: A Contribution to the Histogenesis of Ovarian Tumors. *Am J Obst & Gynec* 922, 10, 23

In one ovary of a woman 53 years of age was

cylindrical type such as are seen in the pseudo-mucinous type of ovarian cyst. Often in these cysts are found oval granular bodies which on superficial examination might be taken for degen-

cell tumors. Several of the terms, such as adenoma of the granular follicle, "folliculoma malignum," and carcinoma folliculodes should be discarded as the tumor is neither a malignant tumor nor an adenoma. In the author's opinion these growths should be grouped as tumors arising from persistent embryonic structures.

E. L. CORVILL, M.D.

Wiatrowski, N.: A Rare Case of a Dermoid Cyst with Ball Formations (Ein seltener Fall einer Dermoid-cyste mit Kugelbildung). *Stern* 19 1, 68

A very rare form of dermoid cyst is a type in which peculiar ball formations are found. Only one such case has been observed in the Obuchow Hospital during the last eight years. In this instance a tumor as large as a child's head was palpable. At operation a cyst having its origin in the right adnexa was removed. The patient made an

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Skrobanski, K.: Operative Treatment of Chronic Purulent Disease of the Adnexa (Die operative Behandlung chronischer eitriger Adnexitiden). *Stern* 1919, 1, 44

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In twenty-nine cases the adnexa and the uterus were removed. The uterus was removed entire in eleven cases, and in eighteen a supravaginal extirpa-

cell type as found in the embryological rests de-

velopment of the macrocysts and later of the larger cysts which occur in the ovary. Further, more, the cells lining these cysts are often cuboidal and occasionally high cylindrical mucin containing elements and can be traced by direct observation from the large cell masses of granulosa like cells. This leads to the presumption that some of the so-called simple cysts, follicular cysts, and even the more complex pseudo-mucinous cysts may be the products of such embryonic remains.

He also saw a exceptional cases cases of non-gonorrheal nature and those of young women in whom he has attempted the transplantation of an ovary from another woman. Unilateral removal of suppurative adnexa was performed thirty nine times in young women without gonorrheal infec-

4. The advantage of laparotomy over the vaginal method is particularly evident in cases of suppuration of the adnexa.

5. Drainage of the abdominal cavity is unnecessary following operation for suppuration of the adnexa.

Service (2)

first death was that of a woman who had a carcinoma of the uterus and suppuration of the adnexa. The adnexa were removed but the patient

by the progressive deterioration in the patient condition. Death occurred on the tenth day follow-

Eighty-four patients were discharged before the eighteenth day and seventeen not later than the twenty-fifth day. One patient with severe post-operative pneumonia was discharged on the thirty-fourth day.

Very interesting were the cases with large abscesses which ruptured during the operation, contaminating the abdominal cavity. In nine of

suppurated adnexa may lead to anatomical cure with patency of the tubes as proven by a later pregnancy.

2. When conservative treatment is of no avail, or the patient lacks the means or time for its employment, operation is necessary.

3. The operation must be radical, especially for gonorrheal processes.

EXTERNAL GENITALIA

Ricker, L. (Chronic Suppurated Ulcer of the Vagina (Ulcer vaginæ chronica suppurata). L'op. gynéc. 1914, 22, 222)

was no involvement of the regional glands or the general health. The only circumstance common to

healing

Heary (2)

GENITO URINARY SURGERY

ADRENAL, KIDNEY AND URETER

Oppel, W. A.: Gangrene Due to Adrenal Arteritis (Gangrena arterialis suprarenalis) *Verhandl. d. russ. chir. Pirogoff-Ges.* Petrograd 1911

Oppel holds that the designation of gangrene as "spontaneous" is unsatisfactory and suggests the use of the adjective "arteritic" by which the patho-

cavity is opened the phrenico-colic ligament of Kupferjanoff is divided. In this manner a broad pas-

the

In all of the author's cases the operation was performed with a remarkably small loss of blood. He performed it in four cases. One patient died of cardiac weakness three days later. Autopsy showed atherosclerosis of the coronary arteries. In the second case gangrene developed and the extension of the adrenal did not prevent the necessity for amputation. In

The author could not demonstrate arteriosclerosis

the excised adrenals.

Meyer (Z)

Guller, H. G. Malignant Disease of the Adrenals, with Report of a Case. *J. Urol.* 1922 vii, 77

Although the adrenals were first described by Castelnau as early as 1363 little attention was paid them until 1888 when

can present. Even a palpable tumor is apt to be diagnosed as a perirenal abscess, a tumor of the kidney or disease of the gall-bladder, spleen, or liver. Urinalyses and pyelography however are diagnostic aids, and attacks of pain in the hypochondrium and lumbar regions due to pressure on the first second and

the latter being of mesodermic origin. Primary

carcinoma must originate from epithelial elements with connective tissue for its stroma, or from misplaced tissue of other blastodermic layers.

some with multiple nuclei, and mitotic figures were found. The microscopic diagnosis was large rounded-celled sarcoma.

The large bone-like mass taken from the region of the tumor was completely soluble in hydrochloric acid and absolute alcohol. It was evidently a calcareous deposit. C. D. Hottel, M.D.

Simmons, R. R. Gonococcal Infections of the Kidney & Uter. 1912 11, 3.

This article contains a discussion of previously reported cases of gonococcal infection of the kidney, the author's opinion concerning the routes of renal infection, a detailed report of the author's case, a

my years.

The case reported by E. Hottel as being of the nature of

lower back on the right side.

The friability of the tumor and the density of its

ney occurred ten days after the onset of the infection. The most severe case occurred nine years after infection. The fact that most of these cases occurred weeks or months after the initial infection indicates that gonococcal infection may remain dormant for a long time and later demonstrate itself in lesions distant from the original focus.

died. A few days before death a gastric ulcer was developed.

Microscopic examination of the tissue removed at operation showed a fairly uniform mass of large cells with large nuclei varying from round to oval. A number of very large cells with very large nuclei,

Simmons found both kidneys affected in only six cases the right kidney in twelve and the left in seven. Infection of the pelvis alone was demonstrated in twelve and of the kidney and pelvis both in seven. A general bacteremia from gonorrhea was found in three cases. The most frequent

associated infection was that due to the colon bacillus.

The author's case is unique in that it was a combination of kidney fracture with pure gonococcal infection. The patient had had gonorrhea for four or five months preceding a severe blow on the abdomen. This blow knocked him down and

lat, a fracture in the markedly thinned renal parenchyma could be readily palpated through the unbroken capsule. The kidney pelvis was explored for stones. From direct smears without sedimentation large numbers of intra and extra cellular gram-negative, bacilli-shaped diplococci were demonstrated. On culture media there was a pure growth of gonococci.

It was impossible for the author to determine how long the gonorrheal infection had continued in the kidney. He is of the opinion, however, that it was not of very recent origin since the severe hematuria had no part in the fracture.

tion was strongly suggested by the fact that the patient had a completely negative history as regards bladder discomfort prior to his admission to the hospital.

The author's conclusions are summarized as follows:

1. Gonorrheal infections of the kidney are of rare occurrence only twenty-four previous cases

either by cultural or staining methods is the only

Green T M. Stricture of the Ureter: a new Explanation of Some Obscure Abdominal Conditions. *Surg Gynec & Obst* 9:3 1909 353

Green finds the most frequent site of ureteral

and inflammation of the peri-ureteral tissue. The intrinsic causes are tuberculous, bilharzia,

calculus malignancy and pyogenic infection. Syphilis should always be borne in mind as a cause. Among the organisms found most frequently are the colon bacillus, staphylococci streptococci, and gonococci.

The effects of stricture on the kidney and the ureter are gradual dilatation and atrophy. Following dilatation of ureteral strictures the author has found some very encouraging results in lower blood pressure readings.

One of the most characteristic symptoms of ureteral stricture is pain. This may be acute or

burn of the pelvis. The cystoscope often gives valuable findings, such as a urethritis and occasionally actual urethral stricture. The latter is always suggestive of a stricture of the ureter above. The most ureters sometimes shows a beilium

with a wax bulb

Finally a pyelo-ureterogram serves not only to check up the possibility of hydroureterosis but demonstrates the presence of stricture and its location.

LOUIS GUON, M.D.

BLADDER, URETHRA, AND PENIS

Latsko, W. The Extended Radical Operation for Cancer of the Bladder and Its Anatomical Basis (Die erweiterte Radikaloperation des Blasenkrebes und ihre anatomische Begründung). *Zentral f. urol Ch* 9: vii, 135.

The author first describes his amplification of Wertheim's radical operation for carcinoma of the uterus. The complicated structure of the parametrium, which extends on each side from the pelvis to the uterus in the form of a wedge, he dissects into three layers and carefully isolates each layer of connective tissue, of which the central carries the vessels, so that he may divide them at a greater distance from the uterus than is possible when a common ligation of the parametrium is done.

This idea of dissecting the pelvic connective tissue he applies to the transperitoneal radical operation for carcinoma of the bladder. After

division of the peritoneum between the bladder and uterus three strong bands of connective tissue on each side of the bladder are divided as close as

wound are protected by tissue towels, the carcinomatous mass in the bladder is exposed with the use of special retractors, and the process of electro-

extirpates the bladder with a large amount of connective tissue and obtains better end-results. In order to improve the chances of primary healing in the radical treatment of carcinoma of the bladder it is necessary to extraperitoneum the region of operation before opening the infected bladder

BARTON (2)

The

The authors describe four of the most effective therapeutic measures to combat malignant disease of the bladder and prostate

It is of the utmost importance that the treat

TECHNIQUE

Attention to the preliminary preparation of the patient and his qualification for these operative procedures so far as organic disease especially kidney damage is concerned, is just as obligatory as in cystotomy for any indication, notably prostatectomy

position. The bladder is "catheterized" with from 0 to 2 oz of a

opened well up on the silver nitrate solution has been allowed to escape through the catheter. The freshly cut edges of the

rupted sutures of silkworm gut and the radium needle threads are secured for the time desired, if passed through the lumen of the drainage tube by an L-shaped glass drain connector. At the end of the first week after the operation the drainage tube and all sutures are removed and a special ambulatory

showed not more than three pos cells in a high power field on two films three to eight weeks after the treatment had been discontinued.

The average age of the patients was 37 years and the time elapsed since the last acute urethral infection varied from two and one-half months to twenty years (silicof structure). The longest duration of treatment was forty-eight and eight-tenths weeks the shortest five weeks and the average eight and five tenths weeks. About 66 per cent of the patients had a urethral discharge before beginning treatment and in 28 per cent gonococci were

described by Herbst or as described above

Intensive roentgen-ray cross fire may be of ad

Anti-operative roentgen-ray treatment is probably more important in all forms of malignant disease than postoperative treatment and will cover some a period of about two weeks. It should cover the entire pelvic area and extend as far up along the line of the lymphatics as it is probable that the disease has advanced. As postoperative treatment at least two full doses should be given through each area, beginning about two weeks after the radium application and again about three or four weeks later.

RESULTS OF TREATMENT

By this quartet of therapeutic measures twenty six patients have been treated, with only two deaths. One patient has not been traced. The majority have been treated and observed only during the last three years. The authors desire merely to describe

seventeen cases some operative procedure was done as part of the treatment.

The author concludes that every male with the slightest symptom of residual gonorrheal infection is potentially infectious, and that gonococci may remain in the urethra or adnecta for years. In a large majority of cases these infections can be totally eradicated by appropriate treatment regardless of the time that has elapsed since the original infection.

THOMAS F. FINKLEY, M.D.

Young, H. H.: An Operation for the Cure of Incontinence Associated with Epispadias. *J. Urol.* 193, vii, 1.

Meiser, Page, Stettiner, Stroemel and Barney are reviewed.

In 1908 Young repaired both sphincters in a

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), or preservation of life if not of cure, than any other method heretofore employed.

THOMAS F. FINKLEY, M.D.

Paul, H. E.: Chronic Infections of the Male Urethra and Its Adnexa. *J. Urol.* 9, vi, 5.

The author has investigated

male
female
& c.

were regarded as cured only when there was absence of urethral discharges and urinary drainage

was reported. Examinations had shown complete incontinence.

In the first case the roof of the prostatic urethra was excised through a suprapubic opening. Then, from below, the roof of the membranous urethra was excised until this incision met the incision from above. Through the suprapubic opening the internal sphincter was closed so that a tight orifice was produced. The same suture closed the adjacent anterior wall of the bladder. The mucous

membrane was not included Through the ep-

Antiseptics do not influence the course of the disease and the balsamics cause renal and gastric disturbances and rashes. Burning of the urethra may be controlled by copious draughts of water lime water barley water or milk. Alkaline mixtures,

for loss of sleep, suppositories of opium, atropine or belladonna should be used

suprapubic drainage as usual using drainage
Later sounds up to a No. 22 F were passed. Coitus was normal.

points
Simple epispadias can be repaired. When incontinence is present there is a muscular defect along the roof of the urethra associated with dilatation

tating. ———— and attack

GENITAL ORGANS

Fraser A. R. A Survey of the Treatment of Acute Hemorrhoids in the Male. *J Urol* 1931 vii, 87
— — — — — of exercise hydro-

Garrigity J. T.: The Treatment of Malignant Diseases of the Prostate and Bladder. *J Urol* 1931 vii, 23

The author considers that 75 per cent of cases of prostatic cancer have an associated prostatic hypertrophy or that a previous adenoma had been

present, subsequently replaced by cancer and that in but 25 per cent of cases the cancer is associated with adenoma.

Early in the condition the symptoms are usually those referable to the urinary obstruction due to

induration, irregularity of the surface, the forma

nor bladder wall, rendering total extirpation impossible. In only twenty-one of 400 cases was it possible to remove all cancerous tissue. In fourteen cases the radical operation of Young was performed, resulting in a cure in 50 per cent, while in seven a total prostatectomy was done resulting in a cure in all. The author concludes that in 95 per cent of the cases of cancer of the prostate surgery alone is hopeless, insofar as total removal of the

different areas being selected each time. Occasionally local irritation resulted. During the past eighteen months 25 to 30 mgm of radium have been introduced into the prostate by means of needles thrust through the perineum and left for

tion, however were not much influenced, and in cases of large residual or complete retention, prostatectomy was done. In every case operated upon after the employment of radium, distinct cancer tissue apparently unchanged, could be

radium. The implantation of emanation tubes in cases in which resection was not feasible has been discouraging in its results. Papillary cancer with only superficial infiltration may be treated by radium. Tumors anterior to the vesical orifice regardless of type should receive surgical treatment as they are almost inaccessible by the intravesical route. Even very extensive cancer of the bladder may be without evidences of metastasis.

The article contains illustrations of the various steps of the perineal resection of carcinomatous tissue.
H. G. HARRIS, M.D.

Young, H. H.: The Radical Cure of Tuberculosis of the Seminal Tract. I. A Brief Survey of the Literature. *Arch Surg* 1922 54 334.

Genito-urinary surgeons are by no means in agreement regarding the best method of treating cases of genital tuberculosis. Some treat expectantly while others use vaccines resorting to surgery for the evacuation of pus after the tuberculous process has broken down. Probably the largest

... were the results of the various forms of

and the results.

In the third part of the article Young analyzes the statistics taken from the literature and his own series of cases. He believes that these statistics show conclusively that in the great

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... to suppose that primary tuberculosis of

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... the bladder and the
Salivary. In fact, tuberculosis in the region of the

prostate and vesicles is far more dangerous to the entire organism than tuberculosis of the epididymis and probably responsible for the fearful mortality in

regarded not only as the operation of choice but as practically imperative.

Young gives a detailed and profusely illustrated description of the radical operation for excision in tuberculosis of the entire seminal tract.

In the author's cases the operation was not reserved entirely for patients in good general condition. Seven had fairly definite evidence of

urinary fistula is present in only one case and in this instance only a few drops of urine escape during urination. Discharging sinuses are present either in the scrotum, the groin, or the perineal wound in six cases. Most of these are recent cases. Statistics show that the complications mentioned

low:

Statistics show conclusively that in most cases of genital tuberculosis the primary focus is in the seminal vesicles. Tuberculosis of the seminal tract is therefore the better name.

along the ureter.

From the seminal vesicles by the posterior line of lymphatics, the mediastinum and the lungs may be involved.

"Tuberculosis of the seminal vesicles (ampullae and prostate if involved) ranks first in importance when a curative operation is proposed for genital tuberculosis."

Epididymectomy with injection of the vas and

as recommended by von Buerger is preferable

But with all the non-radical procedures high percentage of failure—ultimate infections of remote organs and death—results.

"The only hope of radical cure or complete ar

hopeless cases

"By the technique described by myself with the

to-and-fro traction described without opening the

operation

involved) through the perineal prostatectomy incision coupled with epididymectomy and extraction of the entire vas deferens, with partial or complete

Kretschmer H: Calcification of the Seminal Vesicles. *J Urol* 19 2, 4, 67

operation, found no stone

Enderlen: Transplantation of the Testicles (Ueber Hodentransplantation). *Zentralbl f Chir* 9

On the basis of the results in four cases in which the testicles of young persons were transplanted into the musculature of the abdomen or the inguinal region of patients of the same age Enderlen concludes that successful transplantation of testicles is

impossible. In none of these cases was there any return of function. Macroscopic examination of sections of the transplants removed after several weeks seemed to show a healing over but macroscopic examination revealed necrosis and fatty degeneration. Testicle transplantation is successful only when the microscope proves definitely that the implanted tissue has healed in. *Voeschuriz (2)*

Cunningham J H and Cook, W H. The Operative Treatment and Pathology of Acute Epididymitis. *J Urol* 1912, 26, 139.

Epididymotomy is advisable in cases in which there is a severe local and general reaction and in cases of acute and subacute epididymitis. It causes rapid relief of the pain, greatly shortens the course of the disease and exerts a beneficial influence on the inflammatory process in the seminal vesicles and prostate thereby lessening the duration of treatment of these organs. Following the operation, recurrent epididymitis is rare and sterility is not greater than following non-operative treatment.

The pathologic study of epididymitis shows a rapid destructive process in the tubules and intertubular tissue. Swollen tubular epithelium, the accumulation of polymorphonuclear leucocytes in

the tubules, proliferative activity of fibroblasts, and the formation of fibrin demonstrate a rapid process. The development of an abscess is frequent. The permanent defect in the tubules is shown by a cellular change in the epithelium, the lumen and the contents. There is an increase in muscle fibers in the tubular wall. *H W FLAGGMEYER, M D*

MISCELLANEOUS

Campbell, M F: Section Drainage, with Presentation of an Apparatus. *J Urol* 1912, 26, 53.

The author describes an apparatus for post-

construction and maintains the pressure in the

urological case

H W FLAGGMEYER, M D

SURGERY OF THE EYE AND EAR

EYE

Wright R. E.: Extirpation of the Lacrymal Sac.
Indian M Gen 1922 lvi, 52

Greenwood's operation for extirpation of the lacrymal sac is similar to that originated by Elliott.

Greenwood first demarcates the anterior lip of the lacrymal fossa by placing the finger on the

Two points which the author considers important are

1 Occlusion of the canaliculi as practiced by Greenwood.

2 Localization and preservation of the angular vein
C. COURTNEY YANCY M.D

O'Reilly W. F.: The Extraction of Non-Magnetic Foreign Bodies from the Anterior Chamber of the Eye. *Boston M & S J* 1921 clxxvi, 418

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possible all structures are delicate in the

1

hemorrhage, (5) minimum postoperative reaction (6) no undue pressure on the intra-ocular contents and (7) the use of an inexpensive and adaptable instrument

If it is impossible to remove the foreign body in this manner he removes the portion of the iris which contains it
THOMAS D. ALLEN, M.D

Hepburn, M. L.: Experience Gained from 100 Trephine Operations for Glaucoma. *Brit J Ophth* 9 2, 4, 67

In presenting this review of cases, Hepburn

1

severance downward

The author is strongly in favor of occlusion of the canaliculi as advocated by Greenwood but suggests that clamping them with Flaxeland's mosquito forceps before cutting them is all that is necessary. The closure of the wound is a matter for the individual surgeon.

Dead space is eliminated when dressing the wound. Small round pad secured out

practically bloodless

operation)

The author's most successful results are obtained when the operation is done early in the disease. He operates whenever there has been a single sub-

Kirkpatrick, H.: The Etiology of Primary Cataract.
Brit M J 19 1, 497

After a short discussion of the usually considered etiological factors of cataract, Kirkpatrick discusses the association of disturbances in some of the internal secretory glands, particularly the genitive glands, and makes the following statement:

Satisfactory compensation occurs (in old age) in most cases but its establishment may sometimes be rendered difficult or may be prevented by the existence of other factors, such as infections, food deficiencies, and hereditary influences. He mentions diabetes and its associated cataractous tendency and calls attention to the fact that defective endocrine function is common in India, probably because of malnutrition.

THOMAS D ALLEN, M D

Brose L. D. Congenital Anterior Capsular Cataract. *Am J Ophth* 1922 20

An entire family consisting of five persons

conjunctiva 4 mm above the limbus emerging 1.5 mm above

With a strabismus hook the thread between the corneal and the conjunctival insertions is pulled up to form a loop 12 to 15 mm long so that it cannot obstruct the escaping cataract. The operator is then ready for the incision.

At any time during the operation, if necessary, the wound can be closed rapidly by pulling the long end of the thread. When extraction is completed

why it must be removed before the end of a week at least

C CORRY LAWLEY M D

Williamson F. B. A. Two Cases of Thrombosis of the Retinal Vein. One Showing a Hole, the Other a Star at the Macula. *Brit J Ophth* 9 67

In the first case reported microscopic sections showed that the formation of the hole at the macula was due to a subretinal exudate. The patient was 63 years old. The failure of vision began fourteen years previously. Teeth had been extracted.

Pain in the head was experienced during the

at the macula

Serial cross-sections of the disc and macula showed absence of the inner nuclear layer and inner reticular layer. The retinal pigment layer was separated from the inner layer of the choroid, a condition not present in other parts of the specimen. The rods were fairly well preserved, but between them and the pigment layer was a thin layer of

Fritsch, F. A Method of Preventing Loss of Vitreous. *Am J Ophth* 9 8

1. incision

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incision
1/4 in.

side and 2.5 mm below the upper corneal margin, passing about 1 mm below its insertion without touching the anterior chamber and the thread is pulled through until the knot is in contact with the cornea. The needle is then inserted into the

the area of separation of the retinal pigment layer observed at the macula was also present

Section at the fovea presented similar characteristics except that the anterior wall of the cyst was not present thus accounting for the formation of a hole

the outer layer of the retina appeared to have under

The changes at the macula bore a certain resemblance to those in the first case. The sections showed also a thrombosed vessel on the side of the disc, slight cupping of the disc, and small hemorrhages

the macula.

No macular hole was present in this specimen, but the author believes that if the condition had continued a little longer a hole would have been formed by the further degeneration of the retina and that possibly a cyst would have developed in the

6 The hemorrhages are due to a localized pathologic weakening of the blood vessels. Increased blood pressure and exercise are only exciting causes.

7 The veins are usually attacked.

8 In some cases there is involvement of the retina early in the disease.

11 The disease is primarily in the retina and the partial or complete detachment of the retina is due to traction from scar tissue rather than to sub-retinal hemorrhages from the choroidal vessels, as has been suggested.

12 The prognosis is poor, both eyes usually become affected, and in most cases the vision is markedly diminished.

13 The disease is much more frequent in men. In women it is usually less severe.

THOMAS D. ALLEN, M.D.

Dandy W. E.: Perichiasmal (trigeminal) Tumors of the Optic Nerves. In *J. Ophth.* 1912, 146.

Two cases of tumors of the intracranial part of the optic nerve are reported.

greatly improved as the result.

In the second case the tumor could not be removed because it was under the optic nerve on the side

Flannoff, W. C.: Recurrent Hemorrhages into the Retina and Vitreous of Young Persons. In *J. Ophth.* 1913, 293.

The conclusions drawn are as follows:

1. Recurrent hemorrhage into the retina and vitreous in young persons is probably not a specific disease.

2. Tuberculosis involving the retinal vessels, especially the vein, is one of the common etiological factors.

3. Syphilis is an occasional cause.

4. Focal infection is a possible cause.

5. Hemophilia is not a cause but might be a contributing factor.

nerve tumors extend into the cranial canal.

present

Dandy states that any brain tumor which can cause a choked disc can be accurately diagnosed and precisely localized. Conversely it can be told with

pains which always accompanied the spell of periodic vomiting. The fleeting character of the ocular changes indicated a lesion which varied in size.

processes were not destroyed. Therefore the pres-

atrophy could not be questioned therefore it seemed probable that a tumor was located somewhere along the optic nerves and presumably between the optic foramina and the chiasm.

THOMAS D. ALLEN, M.D.

EAR

Emerson, F. P.: The Indications for Operating the Mastoid Cortex. *Boston M & S J* 91: 444-451, 1901.

The mastoid cortex may be opened (1) to remove a pyogenic focus threatening life (2) to conserve hearing and (3) to prevent chronic mastoiditis.

In a case of a middle ear and mastoid involvement it may be safer to operate than to delay, yet in the absence of threatening complications it is better in the interests of a early dry middle ear and good hearing to delay operation for eight to ten days until the bone abscess has begun to be walled off by a leukocytic barrier. If operation is performed earlier, deeply placed cells may break down later or reinfection of the middle ear from the original infection in the mastopharynx may take place.

The indications are discussed as follows:

Membrane tympanum. A nipple perforation with fibrous exudate in the middle ear or a so-called boggy membrane at the end of a week often indicates a low-grade process with a tendency to become chronic.

2. Temperature. This has no diagnostic significance.

3. Posterior superior canal wall. Sagging of the wall is perhaps the most common and reliable indication for operation in acute mastoiditis but

tonic

6. Duration. Any case that does not show signs of improvement after ten days may justify operation to preserve hearing or to prevent a chronic mastoiditis.

7. Night pain. This is suspicious.

8. Leucocytosis. The presence of a leucocytosis

ity of the infection

9. Type of infection. This is not a definite indication as different persons react differently to the same infection.

10. Type of mastoid. The pneumatic type is

operation are given

Continued suppuration resisting local treatment and accompanied by anemia and poor resistance

2. Chronic discharge with cholesteatoma

3. Chronic mastoiditis with acute exacerbations in which the hearing is practically gone and treat-

6. An abscess

5. Chronic mastoiditis with polyps springing from the promontory and oval window.

O. M. ROTT, M.D.

SURGERY OF THE NOSE, THROAT, AND MOUTH

NOSE

Francis, R.: A Case of Rhinolith Presenting Unusual Features. *Med J Austr* 124, 9: 1240

The case reported was that of a male aged 62 years. Another physician had made a diagnosis of chronic glaucous of both eyes and referred the patient to the author for a nose and throat examination because he had noticed an offensive odor coming from the nose.

The patient gave a history of nose bleeding in

Of twenty-six cases treated in this manner twenty-four were clinically cured. The efficacy of the operation is to be explained only by the assumption that the cause of the osoma is abnormal breadth of the nasal lumen.

Hansen (2)

Danker, A.: Further Experiences in the Treatment of Typical Fibromata of the Nasopharynx (Weitere Erfahrungen über die Behandlung der typischen Nasenrachenfibrome). *Monatsschr f. Chir* 1914, 41: 1030

Since reading a paper before the International Laryngological Congress at Berlin the author has had occasion to operate on twelve additional cases of very large nasopharyngeal fibromata, the histories of which are here reported. For cases in

Upon examination of the nose on the left side a

and hanging into the nasopharynx

The X-ray showed a rhinolith of the nasal cavity and dullness of both antra. The antra were punctured and found to be clear.

The rhinolith was removed by breaking it into pieces. It measured 6 by 2 1/2 cm. and weighed

previously reported

F. K. HAYES, M.D.

Hinsberg, V.
with
Behand
Method

— 17 1/2 — — — — —

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con-
ways

107. TAMMAYR (2)

THROAT

Crowe, S. J. and Freitstetel, M. L.: Papilloma of the Larynx in Children: A Report of Eleven Cases. *Arch Surg* 19, 11: 175

Papilloma of the larynx in children, though rare (the incidence being approximately 1,000 in those under 14 years of age) is the most common type of new growth in the larynx in children and very difficult to cure. The difficulties of treatment by operative removal are due to (1) the small lumen of the larynx and trachea in children (2) the tendency of the growth to recur locally after excision and to transplant itself to adjoining areas of mucous membrane which were free from growth before the operation, and (3) the tendency for tracheal stenosis.

laryngoscopic apparatus may be used. Care must be taken not to injure the surrounding membrane. Even sponging with gauze or cotton may result in spread of the growth. Actual chemical cauterization

the nose.

should be avoided it will not prevent recurrence

essential features in the treatment of papilloma of the larynx in children

Crisle G W; Laryngectomy *Surg Gynec & Obst* 1911 xxvii 305

Crisle states that the results in his first series of cases of laryngectomy were very poor. Since the following technique was adopted, however, he has performed thirty five total laryngectomies with only two deaths. One patient is well twenty eight

months after operation. The thyroid gland is then separated from the trachea and retracted. The trachea is completely separated from the esophagus and iodoform gauze is packed behind

to increase his weight during convalescence

J C BARNARD, M D

Woods, R. Laryngectomy *Surg Gynec & Obst* 1911 xxvii 307

One of the greatest obstacles to the success of laryngectomy was removed by the introduction of the nasal tube for feeding purposes.

The author divides his operations into two classes: those in which the larynx alone was involved and those in which the hypopharynx or

trachea was involved. The carbon dioxide evolved sooner or later escapes with a noise that makes a perfect substitute

The operative technique advocated is described as follows:

Two incisions are made: one across the neck immediately below the hyoid bone to expose the thyrohyoid membrane and a median vertical incision carried from this incision to the suprasternal notch. The two triangular flaps thus outlined are reflected outward to expose the extrinsic muscles of the larynx. The latter are lifted on blunt dissectors and cut away the framework of the larynx being left bare. The superior laryngeal vessels are secured at the point where they traverse the thyrohyoid membrane. The cricothyroid and inferior laryngeal vessels are similarly dealt with. The inferior constrictor fibers are severed at their insertion into the posterior border of the thyroid

pharyngeal mucous membrane is snipped through along the border of the thyroid cartilage, the thyroid membrane and the mucous membrane at the base of the tongue in the vallecula being cut. Following around the same structure on the opposite side in inverse order the lower corner of the thyroid cartilage is reached when the whole larynx lies free in the wound.

The next step consists in incising the anterior wall of the gullet in order to connect the beginning and the end of the incision just described. This should be done as high up as possible without entering the diseased area. The higher the wall above and behind the posterior wall of the trachea, the less chance there is of a fistula in the food passages and the less trouble it will give if it develops. The mucous membrane of the gullet is next stripped back from behind the cricoid cartilage. The larynx is then held only by its connection with the trachea and a few transverse strokes of the

pharynx, and a drainage tube is inserted into the pharynx and stitched to the side of the feeding tube.

MOUTH

Pettit J. A.: Some Considerations of Cleft Palate
Surgical Technique *Twentieth Med* 9 2, 11,
58

The average cleft palate represents not so much a
deficiency of tissue as a displacement of anatomical

child grows older. In proper reconstruction, at
tempts are made to transfer sufficient tissue from

The edges must be brought together without the
least tension. Tension sutures frequently cut
through the soft tissues.

To relieve tension in the posterior portion of the
palatal cleft the author places two or three silver
wires through the muscular velum some distance
from the suture line, fastens them on either side to

done very early in infancy and the cleft palate
operation should be performed before the child
acquires the habit of imperfect speech.

J. C. BRANFORD, M.D.

Petersen F.: Glomus of the Tongue (Ueber Glomus
linguae) *Zeitschr f Path* 9 1 XXVI, 214.

The author describes the case of a female infant

tory of the case is unknown.

Histologically the tumor consisted of neuroglia
tissue without ganglion cells. Genetically it would
be classified with the teratomata, and with a sub-
group of these tumors which contain only one variety
of tissue. Mention is made also of the mixed tumors
of the base of the skull covering the mesoparynx.

BURROCK (?)

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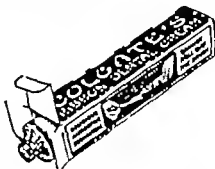
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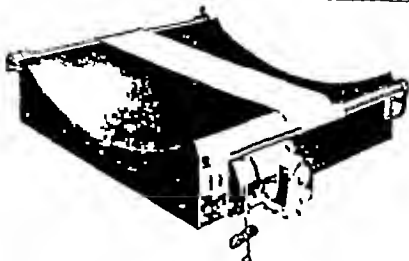
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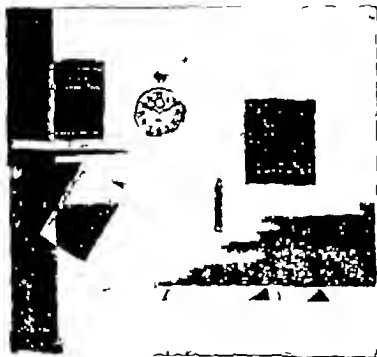
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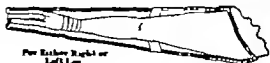
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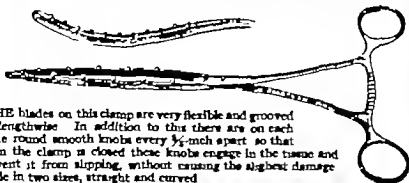
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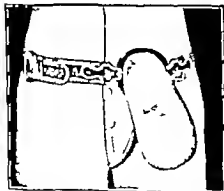


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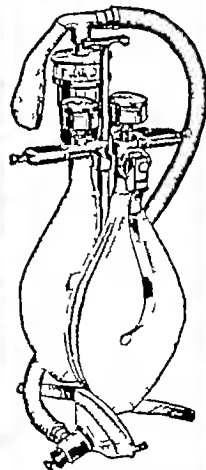
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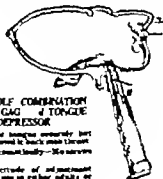
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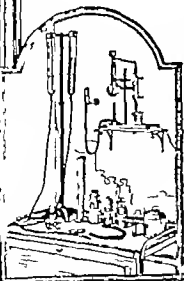


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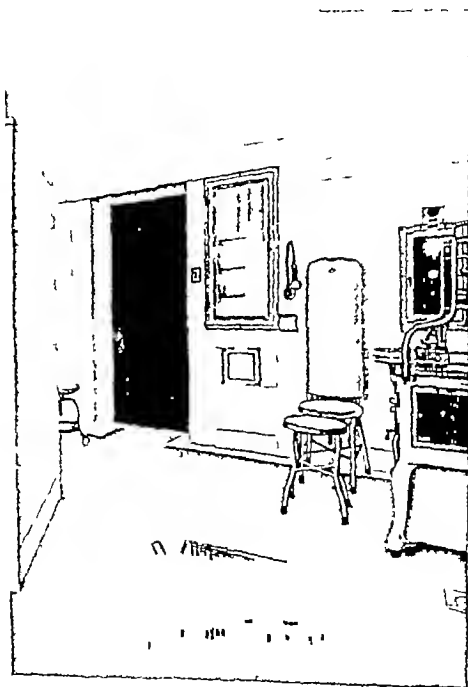
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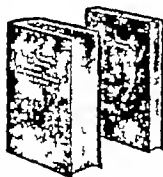
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